

# The Buyer's Guide

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An example of the up-to-date character of this popular line is the "flare-holding groove" in tube cutter No. 174-F. The tube rests against twin rollers, in which is a vertical groove; see A in sketch. When it is desired to remove the flare only, it is fitted into the groove, and the blade leaves the rest of the tube untouched.

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## BINDERS

### For back issues of the News

We offer a binder designed and made especially for keeping your file copies of Electric Refrigeration News neat and always available for ready reference. It is made of stiff board covers, attractively bound in good quality of black imitation leather. The name Electric Refrigeration News is stamped in gold on the front cover and backbone.

The price is \$3.75 shipped to you postpaid in the United States and Possessions and Pan-American Postal Union countries. For all Foreign countries postage based on a shipping weight of 6 pounds must be added to this price. Send your remittance with order. May we send you one?

Electric Refrigeration News, 5229 Cass Ave., Detroit, Mich.

**KASON HARDWARE**

Manufacturers of Fine Refrigerator Hardware

**KASON HARDWARE CORP.**, 127-137 Wallabout St., Brooklyn, N. Y.

## Questions

### High Side Float

No. 2769 (Manufacturer, California)  
—"Please enter our subscription for one year for the ELECTRIC REFRIGERATION NEWS."

"We would appreciate your advising us the name of manufacturers of high side floats for domestic units. We are particularly interested in a high side float to be used on Majestic hermetic units. The manufacturer would have to submit samples for test purposes before our approval. Our yearly demand would represent about 1,000 floats."

Answer: Manufacturers of high side floats for domestic units are listed on page 278 of the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY.

### Artificial Foods

No. 2770 (Dealer, Michigan)—"Will you kindly furnish us with the name of the manufacturer who supplies artificial food for refrigerator display purposes?"

Answer: Cincinnati Doll Co., 311 E. 12th St., Cincinnati, makes artificial food for refrigerator display purposes.

### Self-Contained Air Conditioner Warranties

No. 2771 (Manufacturer, Indiana)—"Will you kindly advise whether or not any form of warranty is being used for self-contained cabinet type air conditioners? If so, and you have a copy in your file, would greatly appreciate your furnishing same to us."

Answer: None that we know of.

### Refrigeration Doors

No. 2772 (Dealer, New York)—"Please send us address of the Jameson Refrigeration Door Co., also any other addresses you might have where we can procure bids on refrigeration doors."

Answer: Jameson Cold Storage Door Co., Maple Ave. and Forest Drive, Hagerstown, Md.

### DuPrene Gasket Materials

No. 2773 (Service Firm, California)  
—"Some time ago it seems to me I noticed in the REFRIGERATION NEWS that someone had developed a composition that could be used as a gasket that would withstand the action of F12 and SO2. The name of this is 'dupone,' or something like that. Can you give me any information about this material and who manufacturers it. I must have misplaced the issue that had this in as I looked through a good many back issues and could not find it. I want to use this on shaft seals."

Answer: The composition "Du-Prene" to which you refer is manufactured by the Fabrics Division of E. I. Du Pont de Nemours & Co., with headquarters at 350 Fifth Ave., New York City.

### Freon Distribution

No. 2774 (Dealer, New York)—"We understand there is a concern in Cleveland which sells Freon gas. Can you tell us the name of the company?"

Answer: We referred your question to the main offices of the Kinetic Chemicals, Inc., and received the following reply under the signature of W. W. Rhodes, sales manager:

"I have your letter of April 27, and would advise that there are a good many concerns in Cleveland selling 'Freon' to be filled into equipment of the refrigerating machinery manufacturer they represent—in fact we have a warehouse there for their convenience."

### When They Started

No. 2775 (Manufacturer, Holland)—"As a regular subscriber to your interesting paper, we should be very much obliged if you could furnish us with following details:

"The years when actual production of electric refrigerators was started by the following companies: Frigidaire, Kelvinator, General Electric, Westinghouse Electric, Norge, and Crosley."

Answer: Frigidaire, 1918; Kelvinator, 1914; General Electric, 1927; Westinghouse, 1930; Norge, 1927; and Crosley, 1932.

### Power Requirements Of Refrigerators

No. 2776 (Better Business Bureau, Illinois)—"We observed that in your March issue you have a number of charts relative to required running time, power requirements, etc., and we are wondering if you have made or if you know of any authoritative source which has made tests in which

the amount of electricity consumed by a refrigerator in normal use in a home is computed in kilowatt hours.

"We have a very small amount of data of this nature and are anxious to learn if qualified tests have been made by different companies or by any association or publication, such as your own. We wish to know just how much electricity, as measured in kilowatt hours on the consumers bill, is actually consumed by the refrigerator."

Answer: For further information on tests showing the amount of electricity consumed by a refrigerator in normal use, we suggest that you contact Harvey Lindsay, President, Dry-Zero Corp., Merchandise Mart, Chicago.

Dry-Zero has conducted several tests on electric refrigerator operation in its laboratory.

### Counter Freezer

No. 2777 (Distributor, California)—"We are very desirous of obtaining a list of names and addresses of leading manufacturers of ice cream unit makers and its equipment."

"We do not want names of firms such as the Mills Novelty Co. and the Taylor Manufacturing Co. We are only interested in those which manufacture the ice cream freezer unit of the counter type, not the complete ice cream freezer with hardening and mixing cabinet."

Answer: Manufacturers of ice cream freezers are listed on pages 203 through 206 of the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY.

This list does not distinguish between companies which manufacture the freezing unit only and those which manufacture the complete ice cream freezer. However, we believe that you will find that there is no such distinction, that manufacturers listed will make either of both of the types of equipment which you mention.

### Maker of Mohawk Units

No. 2778 (Attorney, Missouri)—"Thanks for your reply of April 7 in which you say, the 'Mohawk Refrigeration Systems were manufactured by the Rudolph Wurlitzer Mfg. Co."

"I learned, or am informed, that the Mohawk and Chilli-Rator refrigerating units, used by the Wurlitzer Co. in their refrigerators of their name, were manufactured by Universal Cooler Corp. of Detroit."

As I think it likely this is merely a sales organization, I am writing you to ask if you can, with this information, supply me with the correct name and address of the manufacturer of these units—in particular, Chilli-Rator."

Answer: Specifications of Wurlitzer-Mohawk refrigerators, published in ELECTRIC REFRIGERATION NEWS in 1934, showed that the unit was made by Universal Cooler Corp. of Detroit.

### Water Containers

No. 2779 (Dealer, Ohio)—"Will you please advise the source of supply for water containers of about five gallon capacity."

"These are needed to complete water cooler."

Answer: Owens-Illinois Glass Co., 965 Wall St., Toledo, Ohio, and Perfection Cooler Co., Division of Gueder, Paeschke, & Frey Co., Milwaukee, Wis.

### Rotary Seal

No. 2780 (Distributor, Nova Scotia)  
—"Can you supply us with the name and address of the manufacturer making the new type rotary seals for refrigeration compressors?"

"We understand this seal was brought on the market some eighteen months or two years ago and has come into quite general use."

"We are interested in getting in touch with the manufacturer with a view of stocking this line of seals as a jobber for distribution to our dealer trade."

Answer: You probably have reference to the Rotary Seal Co., 809 W. Madison Ave., Chicago, Ill.

### Vacuum Cleaner Sales

No. 2781 (Dealer, Illinois)—"I am in receipt of a letter from Mr. Finnie, of the National Electrical Manufacturers Association, saying that you undoubtedly have some statistics on vacuum cleaners in your file which might be of some service to us."

"We would appreciate any such statistics which might be available."

Answer: With reference to your letter regarding statistics on vacuum cleaners, the best source of information on this subject would be the Vacuum Cleaners Association, 1070 East 152nd St., Cleveland, Ohio.

### Vert-E-Fex Unit

No. 2782 (Parts Jobber, Puerto Rico)  
—"Please advise us where we can get in contact with the new Vert-E-Fex unit which you advise for commercial use on page 37 of April 22, 1936."

Answer: The Vert-E-Fex unit is manufactured by Refrigeration Appliances, Inc., 1342 W. Lake St., Chicago.

## Classified

RATES: Fifty words or less, one insertion, \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Electric Refrigeration News, 5229 Cass Ave., Detroit, Mich.

### POSITIONS AVAILABLE

**SALES ENGINEER WANTED.** Prominent manufacturer of automatic control equipment has several openings for sales engineers. Previous University training or experience in air conditioning and heating, and an acquaintanceship with architects and engineers is essential. Box 774, Electric Refrigeration News.

**WANTED:** Cabinet design engineer with some practical experience in domestic electrical refrigerator line. State salary and experience. Reply McKinsey, Wellington & Company, 135 South La Salle Street, Chicago.

### EQUIPMENT FOR SALE

NEW, single and twin cylinder methyl compressors, especially adaptable, domestic and small commercial installations; condensers, receiver valves, pulleys, fans; motors, 1/4 to 1/2 H.P.; fittings, expansion valves, Bristol recording instruments, etc. All new merchandise in original containers. Will make prices attractive for quick disposal. Box 775, Electric Refrigeration News.

**BRAND NEW PARTS.** Manufacturers' closeouts—fully guaranteed one year. Detroit Lubricator thermostatic expansion valves, model 673 flange type, \$3.95, equipped with S.A.E. fitting \$4.45. Detroit Lubricator solenoid valves, model 682, \$3.95. "Automatic" model No. 71 solenoid water valves \$3.75. Model No. 73 R \$3.75. Mullins 3 tray evaporators in all porcelain, complete with porcelain front and porcelain suspension plate trays, etc., \$6.95. Hundreds of other exceptional buys, as well as a complete line of standard nationally advertised parts, at drastic price reductions. Write for our catalog. Federal Refrigerator Corporation, 67 East 25th Street, New York City.

**METERICE METERS:**—We have approximately 250 General Electric meterice payment meters for sale. Complete with gears for 15¢-20¢-25¢ daily payments. All are in good working order. Will close out at \$2.00 each f.o.b. Pittsburgh, Pa. Spear and Company, 915 Penn Avenue, Pittsburgh, Pa.

**REFRIGERATOR DEALERS!** Make money with Federal's reconditioned refrigerators, 1000 refrigerators such as Frigidaire, G. E., Kelvinator, Electrolux, etc., completely remanufactured and rebuilt, some as is, as low as \$15; also hundreds of new refrigerators priced for promotional purposes. Federal Refrigerator Corp., 67 East 25th St., New York.

### FRANCHISE AVAILABLE

**MANUFACTURER'S Representatives Wanted:** Salesmen who have state-wide representation on other refrigeration lines to represent the Franklin line of charging connections, dehydrators, liquid sight filters, throttle and constant pressure valves, check valves, etc., in the same territory. Write immediately stating your present connections, references, territory covered. Franklin Machine Products Co., Inc., 663 Broadway, New York City.

### REPAIR SERVICE

**GENERAL ELECTRIC** sealed units repaired, rebuilt, exchanged, \$19.50 up. Majestic sealed units repaired, rebuilt, exchanged, \$17.50 up. Largest shop and best equipped in the country. Satisfied customers in every part of the United States. Ship to us. Immediate service. Also U. S. Hermetics. Wholesale only. Refrigerator Engineering Parts & Service Co., 2800 So. Parkway, Chicago, Ill.

**MAJESTIC UNITS** repaired \$17.50. General Electric units, \$30.00. Send your Majestic units to Ft. Smith and get them fixed right. We positively guarantee that we can make Majestic freeze as fast as when new. Peno Service Co., Ft. Smith, Ark.

**MAJESTIC UNITS:** any model, rebuilt or exchanged \$20.00 f.o.b. Chicago. Guarantee six months. All models in stock for prompt exchange. Wholesale only. Refrigeration Products, Inc., 122 W. Illinois St., Chicago, Ill.

**FRIGIDAIRE** plain T two temperature valves \$2.50. Mercolid No. 848 controls complete with tube \$5.00. Try Warren for stock-up compressors. Samples available. Thermostats, float valves, and expansion valves rebuilt. Prompt service. Same day shipment on refrigerant gases. Halcraft Laboratory, 1793 Lakeview Road, Cleveland, Ohio.

### SERVICE

**FIX MAJESTICS YOURSELF.** Service men—get out of competition and get in the money; be first to know how to fix Majestic and General Electrics in your community. We give you step by step instructions on how to open these units and repair them. These instructions are told to you in service man's language so any service man can understand them. Majestic instructions \$10.00—General Electric instructions \$5.00. Remember if you don't learn how to fix sealed units, you will soon be eliminated. Peno Service Company, Ft. Smith, Ark.

### PATENTS

**HAVE YOUR patent** work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. Van Deventer (ASRE), Patent Attorney, 342 Madison Avenue, New York City.



## REFRIGERATION NEWS

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## Kelvinator Makes Plans to Extend Program Showing How Low-Cost Home Can Be Air Conditioned

By Phil B. Redeker

DETROIT—Within the next month Kelvinator Corp. expects to complete arrangements with utility companies and builders in cities in all parts of the country for the construction of 100 "Kelvin Homes" with a "standard chassis" and a "package air-conditioning" system, built along the same lines as 11 such residences already erected in Detroit.

Main idea behind this building program is to demonstrate the feasibility of complete air conditioning for low cost homes. It is also planned to take survey data on the reaction of the owners to various indoor atmospheric conditions, and to get figures on operating costs, thereby widening the scope of Kelvinator's research on air conditioning.

The approach to the problem of making a low-cost air-conditioned home available, believed Kelvinator officials, involves a step-by-step analysis of the following factors:

1. What is air conditioning?
- A broad-form definition of air conditioning is that it is the automatic control of the temperature, humidity, motion, and purity of air.
2. In what general price range will the greatest number of homes fall, or in other words, in what classification

will there be the greatest volume of production?

Statistics have demonstrated that 90% of the homes built in the United States fall in a price bracket below \$10,000.

3. What is the lowest cost house in this price range that can be built—initial cost of equipment consistent with the total cost; operating cost consistent with owner's budget?

Through the combined knowledge and experience of Kelvinator's staff of experts it was demonstrated that houses in the \$6,000 cost range could be built and equipped with modern conveniences.

4. What methods can be used in working to the lowest possible cost?

Standardization of floor plans, with different elevations; consistent standardization of duct work; and coordination of the various mechanical trades was found to be a solution to this problem.

Kelvinator's efforts to demonstrate the practicability and possibilities of air conditioning in moderate-cost homes is founded on the belief of the company's chief officials that the chief market for residential air conditioning is the moderate-sized house.

(Concluded on Page 18, Column 1)

## Interest in Watson &amp; Wilson Bought By Geo. Eberhard

LOS ANGELES—George H. Eberhard, president of Geo. H. Eberhard Co., San Francisco distributor of electrical appliances, has purchased an interest in the firm of Watson & Wilson, Inc., local distributor of Grunow refrigerators and radios, L & H electric ranges and water heaters, Ironrite electric ironers, and other major household appliances.

Watson & Wilson will continue to handle the same appliances, but its scope will be greatly enlarged and its present staff of 30 employees augmented, Mr. Eberhard stated.

Officers of the company will be: W. J. Wilson, president; Mr. Eberhard, vice president; A. M. Lucas, secretary-treasurer; and Irving D. Watson, H. H. Hansen, and M. J. Hughes, directors. Fred J. Brown will come to Los Angeles to direct the enlarged sales staff.

In making known his purchase, Mr. Eberhard said he believed that another boom is in sight and that the new boom will have its focal point in California, and especially in Southern California.

## Mid-Year Conference of Dry Goods Association Will Open June 8

CHICAGO—Joint mid-year conferences of the six divisions of National Retail Dry Goods Association will be held at the Palmer House here June 8, 9, 10, and 11 with "Keeping Distributor Costs Down" as the main theme of discussion.

Each of the six groups, which consist of Controllers' Congress, Credit Management Division, Traffic Group, Store Management Group, Personnel Group, and Delivery Group will hear specialists talk on their individual problems.

At the general opening session for all groups, "Economics of Price Control Legislation" and "The Retailer Looks at the Consumer Cooperative Movement" are the two topics scheduled.

Other themes chosen for discussion include: "Standardization of Practice and Procedure," "Community Credit Policy," "Social Security Legislation," "General Credit Practices," "Compensation Methods and Costs," "Employee's Entrance," "Employee's Exit," "Small Stores," "Collections," "Employee's Welfare," "Personnel in the Store Employing 200 or Fewer Employees," "Personnel Organization and Management in Multiple Unit Stores," "Taxation Problems," "Wrapping and Packing Clinic," "Instalment Selling," "Insurance Problems," and "Credit Department Expense."

## Retail Sales for April In Kansas City Total 2,802 Refrigerators

KANSAS CITY—April retail sales of household electric refrigerators in this city totaled 2,802 units as compared with a total of 2,486 units for the same month of 1935, reports George Weston, secretary-manager of the Electric & Radio Association.

Although sales got off to a slow start here this year their steady increase is shown by the fact that the total of 7,339 unit sales for the first four months is only slightly less than the total for the corresponding period of 1935 when 8,000 units of household electric refrigeration were sold.

## Rackliffe Awarded \$3,366 Damages in Suit on Contract

HARTFORD, Conn.—Rackliffe Bros. Co., Inc., Kelvinator distributor in New Britain, was awarded \$3,366.09 on May 27 by a jury before Superior Court Judge Alfred C. Baldwin in its suit against Mayflower Sales Co., Inc. of this city, in which the distributor charged that a shipment of Kelvinators which had been intended for apartment houses in Hartford found their way into the possession of R. H. Macy & Co., New York, in violation of an agreement that they would not be sold outside of Connecticut.

In its suit Rackliffe Bros. charged breach of contract and fraud. The jury found against the defendant solely on the count alleging violation of contract.

Mayflower Sales, Inc., immediately filed notice of appeal, which may mean that the suit will go before the Connecticut Supreme Court this fall.

Rackliffe Bros. claimed that when the shipment of refrigerators to the Mayflower Sales Co. found its way into the possession of Macy, that Rackliffe was threatened with the loss of their distributing franchise unless it paid the manufacturer what it cost to retrieve the machines from Macy's. This the distributor did, at a cost of \$3,276.11.

Previously Judge Newell S. Jennings of Hartford County Superior Court had overruled a demurrer filed by the Mayflower Sales Co. alleging that the contract was a violation of the Sherman and Clayton anti-trust laws.

In overruling the demurrer the court held that the definition of Rackliffe Bros.' contract with Kelvinator as an "exclusive franchise" was accurate, and that the terms of the contract were not so oppressive as to justify Mayflower Sales Co.'s claim of interference with freedom of trade.

## Rate Structure Factors Studied By Utility Men

## Rate-Making Policies Defended at Edison Institute Conclave

By T. T. Quinn

ST. LOUIS, June 1—The extent to which electricity is used in industry and commerce has a direct relation to the rates charged the householder for domestic service, said Norman R. Gibson, vice president of Buffalo, Niagara & Eastern Power Corp., in an address today before the opening session of the fourth annual Edison Electric Institute convention in the Municipal Auditorium.

More than 500 public utility men from all sections of the country attended the opening session of the four-day meeting, which was presided over by President Thomas N. McCarter. Delegates were filing into the huge air-conditioned auditorium throughout the meeting today, and it is expected a new attendance record will be established before the final session is concluded Thursday afternoon.

Mr. Gibson's address was the highlight of an afternoon spent in discussing utility rates and accounting systems. Other speakers were W. G. Vincent of Pacific Gas & Electric Co.; L. R. Nash, Stone & Webster Engineering Corp.; H. L. Gruhn of Consolidated Gas, Electric Light & Power Co., Baltimore; H. B. Gear, Commonwealth Edison Co., Chicago; C. E. Kohlhepp, Wisconsin Public Service Corp.; and W. H. Swinney, West Penn Power Co., Pittsburgh.

Illustrating this problem for a small community, Mr. Gibson presented data showing that if the plant served residential consumers alone the average cost per kilowatt-hour would be 9.6 cents; with the addition of commercial light and power, and supplying power to small industrial organizations, municipal street lighting, and water pumping service would bring the domestic rate down to 5.5 cents, the lower rate becoming possible through the greater and more uniform use of the generating and distribution facilities.

"Cost of service is a most disappointing will-o-the-wisp," said Mr. Gibson, "when an attempt is made to

## G-E Is Licensed to Use Auditorium Patents

BLOOMFIELD, N. J.—The General Electric Co. has completed arrangements with the Auditorium Conditioning Corp. whereby it is privileged to use the various patents controlled by the Auditorium Conditioning Corp., officials of the G-E Air Conditioning Department announced last week.

## Henderson Urges Building Managers to Use 'Air Conditioning' Only When Property Is Truly 'Air Conditioned'

DALLAS, Texas—"Air conditioning and air conditioned are much misused words and are often the basis of voluntary or involuntary misrepresentation," warned William B. Henderson, executive vice president of the Air Conditioning Manufacturers' Association, in an address last Wednesday before the Building Owners and Managers Convention here.

He drew attention to the fact that the National Better Business Bureau, after a thorough survey of authorities in the field, had defined air conditioning as "the scientific preparation and simultaneous control of the atmosphere within a structure and that Summer Air Conditioning means at least the cooling, dehumidifying and circulating of air. Winter Air Conditioning means at least the heating, humidifying and circulating of air." The United States Federal Trade Commission, Mr. Henderson also stated, has taken a generally similar view of what constitutes air conditioning.

It was pointed out by the speaker that air conditioning is not a new art. It has been generally used by

## April Sales of 321,300 Units Set New Monthly Record

## Pedometer Test Shows Model Kitchen Saves Nearly Mile a Meal

NEW LONDON, Conn.—Using a pedometer, home economics students at Connecticut College for Women here have established that the housewife working in a model kitchen can save three-quarters of a mile of walking and 45 minutes of time in the preparation of a typical meal, as compared with the woman using an ordinary kitchen.

An experiment conducted by the Home Economics Department established that 3,696 footsteps, or one and three-quarters miles of walking, were necessary during the preparation of a meal in an ordinary kitchen, as compared with 2,112 steps, or one mile in a model kitchen.

Three quarters of an hour's time was saved in the "model kitchen" preparation of the experimental meal, which consisted of baked ham, baked potatoes, fresh peas, lettuce and tomato salad, rolls, layer cake and coffee.

## Crosley Dividend Is Upped to 50 Cents

CINCINNATI—A dividend of 50 cents a share on Crosley stock was declared by the board of directors of the Crosley Corp. on May 26, payable to stockholders of record as of June 15. The company paid a dividend of 25 cents in June, 1935, which was the first dividend payment since the regular quarterly payment of 25 cents in April, 1930.

Explaining the dividend to the annual meeting of stockholders held in Studio A of WLW at the Crosley factory, Powell Crosley, Jr., president, said:

"This does not mean the establishment of a regular dividend policy, but I am hopeful that there may be more dividends before a great while. We have succeeded in building back our losses of the early depression period to a large degree. We have set up our working capital in such shape that we feel justified in making payment of this dividend at this time."

Mr. Crosley reviewed the increase in sales of the corporation from five million dollars four years ago to 10 million dollars annually and last year to between 21 and 22 million dollars.

The date of the annual meeting was changed from the last Tuesday in May to the last Tuesday in March beginning in 1937. This change was due to the change of the fiscal year from April 1 to correspond with the calendar year.

(Concluded on Page 2, Column 1)

## 300,000 Mark Passed for First Time in History; Dollar Value Up

DETROIT—Smashing all sales records for any month in the history of the refrigeration industry, world sales of household electric refrigerators by manufacturers to distributing outlets in April totaled 321,300 units, according to estimates made by ELECTRIC REFRIGERATION NEWS.

This marks the first time that manufacturers' sales for a month have surpassed the 300,000 mark, and surpasses by nearly 35,000 units the record for sales in any one month established by March of this year.

Sales of 299 units were reported by manufacturers who are members of the Household Section of the Refrigeration Division of National Electrical Manufacturers Association.

While unit sales of household electric refrigerators sold by Nema companies increased 16% in April of this year compared with April, 1934, dollar value of these products sold increased 24%, indicating that a higher unit sale price is being realized this year.

New York led all other states in the sales-by-states tabulation of the Nema companies. Pennsylvania was second, California third, and Illinois a close fourth.

Reporting sales to the Household Section of the Refrigeration Division of Nema were Apex, Crosley, Fairbanks Morse, Frigidaire, General Electric, Gibson, Kelvinator, Leonard, Norge, Servel (export only), Stewart-Warner, Sunbeam, Uniflow, Universal Cooler, and Westinghouse. Sales of the reporting companies include units manufactured for the following concerns: Major Appliance Corp., Montgomery Ward, Potter, and Sears Roebuck.

## Tennessee Dealers Declare War on Price Cutting

CHATTANOOGA, Tenn. — Price slashing and unfair trade practice said to have resulted from the mushroom growth of electric appliance dealers in drug stores, country stores, filling stations, undertakers parlors, ice plants, barber shops, and meat markets were attacked by the Tennessee Appliance Dealers' Association and Tennessee Valley Authority officials during a recent convention of the Tennessee Retail Furniture Dealers' Association here.

Price cutting of from 25 to 40% is customary among dealers of this type who stock appliances for relatives and friends, one dealer maintained.

Cooperative buying which has so far proceeded "underground" without the notice of newspapers is another menace warned against by William I. Nichols, chief of the TVA electrical department.

Mr. Nichols said that he plans to inform members of the association in advance of the rural projects.

A committee to study disrupted marketing conditions in rural areas was appointed by W. W. Gambill, president of the Tennessee Appliance Dealers Association. It includes Percy Cohen, K. A. Sollman, and John Hensley, all of Nashville.

A state franchise tax of \$25 to weed out the unfair competition was proposed by Mr. Cohen. In answer, Mr. Gambill condemned the furniture dealers, who, he said, had spoiled the effectiveness of a bill enacted at the last legislature levying a \$75 to \$300 tax, by inserting a clause to the effect that stores in which electrical appliances made up less than 10% of the stock be exempt.

One trouble, Mr. Nichols said, is that the buyers are ahead of the non-aggressive dealer, who is still thinking in terms of lights, lamps, radios, and perhaps refrigerators.

In the Tennessee Valley, the appliance market will not be really open until dealers can offer a practical kitchen heater, he contended. In rural communities people will not buy an electric range because the scrapping of their wood stoves would leave them no way to heat the kitchen, he said.

(Continued on Page 15, Column 1)



## Crosley Radio Line To Be Ready for Conventions

(Concluded from Page 1, Column 4)

Reviewing business, Mr. Crosley said, "We have orders in excess of any possible production for the month of May and are hoping that same situation will exist in June and possibly July. Our sales for the first of May were slow but by the end of the month we will undoubtedly go ahead of the same month a year ago."

### Earlier Start This Year

"This year we have got a much earlier start in the radio business than we did last year. Last year, we had our distributors meeting here in June. At that time we were confronted with the problem of metal tubes and as a consequence we were delayed in getting started. This year our meeting was on May 8 in anticipation of the Republican and Democrat national conventions which, of course, will be broadcast on radio. We wanted to be ready and we are in production on our 1937 models of radios."

Thousands have already been shipped and we are anticipating a much better production on radio than we had last year."

### Hair Growing Machine

Mr. Crosley then referred to a new product that has created worldwide interest, the device developed by Dr. Andro A. Cueto for restoring hair.

"While we are not ready to make a definite announcement as to when this machine will be available," said Mr. Crosley, "we believe that within the next month or six weeks we will be able to announce the hair growing machine."

"Dr. Cueto reports that the machine has been successful in about 95% of the cases. I don't mean to say that in all cases there has been time to grow a full head of hair, or that in all cases it will grow hair; but I will say that in practically all cases hair begins to grow soon after the use of this machine has started. First there is fine soft downy hair which is later replaced with stronger hair and I believe very definitely that the machine is of real value in restoring the growth of hair."

### How Machine Operates

"The machine works by means of pump inside of a cabinet connected with a hose to a cap that goes over the head. First there is a vacuum in the cap that sucks the blood to the blood vessels in the scalp that have perhaps fallen into disuse and have not supplied enough nourishment to the hair follicles."

"By reversing the process and causing pressure, blood is forced out of the blood vessels. This alternate vacuum and pressure restores the circulation in the scalp. The periods are reversed three times a minute. The treatments are of a half hour duration and are given two or three times a week."

## Crosley Men Reflect Optimistic Attitude at Conclave



Crosley distributors and district managers gathered recently at the factory in Cincinnati to view the new radio line, discuss refrigerator sales, and to confer with factory officials. In the foreground of the upper left-hand picture Lewis M. Crosley, vice president, and Fred Johnston, manager of the radio engineering department, get a reaction to the new line from J. T. Cecil, president, Interstate Hardware Co., Bristol, Tenn. In the background are Gene Revercomb, Crosley Distributing Corp., Cincinnati; James E. Aitken, Aitken Radio Corp.,

Detroit and Toledo; and Henry King, Stimpson Sales & Investment Corp., Wichita, Kan.

(Upper right) Howard Buchwald, Lincoln Sales Corp., Baltimore; Fred Johnston; Jack Allen, Crosley district manager for New York state; Neil Bauer, Crosley assistant sales manager.

(Lower left) They shape Crosley policies. Left to right: Vice President Jack Rogers, Vice President Powell Crosley III, General Sales Manager Tom Berger, President Powell Crosley, Jr.

(Lower right) Everybody's happy—about something. Fielding Robinson, manager, Crosley Distributing Corp., New York; Grant Layng, sales manager, Crosley Distributing Corp., New York; David Slobodien, president, Apollo Distributing Corp., Newark; Fred Goldberg, general manager and treasurer, Apollo Distributing Corp., Newark; John J. Hope, Jr., credit manager, Crosley Radio Corp.; General Sales Manager Tom Berger; Harry Roper, district manager for Texas; Hyman Reader, president, Readers Distributors, Houston, Texas.

## Belsey Kitchen Planning Dept. Brings In \$13,509 Sales in 8-Month Period

LOS ANGELES—Establishing a kitchen planning department to operate as a separate division of its organization, adding to the department personnel as its work increased, and backing the department's program with three types of promotion—through these steps the George Belsey Co., General Electric distributor here, increased its appliance sales through kitchen planning activities so that during the first eight months of 1935 sales totaling \$13,509.55 were added to its total business volume through this work alone.

Enthusiastic about the possibilities of group equipment sales when the

merchandising program built around the General Electric Kitchen idea was first introduced, the distributor at that time incorporated the program into the work of its regular selling organization.

This plan was not highly successful, executives found, because the salesmen used the kitchen story chiefly for making single appliance sales.

Although this increased sales, Belsey sales promotion heads saw that the field for the sale of complete kitchen installations in new homes and in those being remodeled remained practically untouched, and opened a special kitchen planning department in its central store in 1934.

When first started, the department was a one-man operation. Russell Johnson who had charge of the work was a draftsman and an experienced salesman. His work was to act in an advisory capacity and to assist the regular salesman in drawing kitchen plans, aid them in closing kitchen sales, and supervise the installations.

The company next added a direct selling operation to its kitchen planning department. Three men, two salesmen and a draftsman, were recently added to the department staff.

Promotions used by the distributor in connection with kitchen planning include: intensive salesmen education; cooperation with the utilities and with the selling organizations of manufacturers of other materials used in planned kitchens; and placement of model kitchen displays in prominent dealerships, and in show places throughout the territory.

Planned kitchen merchandising programs are central features in company sales meetings, and in sales bulletins issued to its men. Salesmen are also kept supplied with new literature on sales methods issued from the G-E Kitchen Institute. Besides this, each salesman carries pictures of the nearest display kitchen in his territory which he uses to induce prospects to visit the display.

Belsey's G-E kitchen displays are installed in dealer stores in San Bernardino, Pomona, Santa Ana, Ontario, Santa Barbara, and North Hollywood. Others are in several Los Angeles department stores and in the Building Materials Exhibit of this city.

Three model kitchens were designed, and installations supervised, by Johnson, director of the department, for the Southern California Edison Co. They are in the Glendale Municipal Power Co., the Burbank Municipal Power Co., and the Riverside Municipal Power Co.

Regular sales demonstrations, conducted by the Belsey Co.'s home serv-

ice department are frequently held in the display kitchens in dealer and department stores in the city.

During the first eight months of 1935, Belsey's Kitchen Planning Department drew up 76 kitchen plans. Of this number, 28 were ineffective because the builders failed to obtain FHA loans. From the remaining 48 plans, 30 sales were made, each averaging \$450.31 per customer.

Procedure followed when a department staff member assists a regular salesman in a kitchen planning job, is as follows: the salesman prepares a sketch indicating the room's dimensions. From the sketch a plan is drawn up, and complete specifications covering the cost of the required equipment, alterations, and materials are prepared.

Next, the department representative usually calls on the prospect with the salesman, and aids him in closing the deal. He then supervises the installation of new equipment.

The same procedure is followed when the department operates as a direct selling organization except that all contact and selling work is done by the department staff member.

A fee of \$3 is charged for drawing up a kitchen plan. This stipulation, company officials claim, prevents the salesmen from using high pressure tactics to sell plans to persons who have no intention of using them, and also eliminates time wasted in drawing up plans for persons who are merely curious, and not interested in purchasing equipment.

The kitchen planning department cooperates with the Belsey company dealers only in an advisory capacity. Dealers in outlying parts of the territory may submit sketches on kitchen planning jobs, and plans are mailed to them. Using these plans, the dealers then obtain the help of a local builder in working out specifications.

## 'Split Payments' for Farmers Are Tested By Denver Dealers

DENVER—New contracts embodying "split payments" are putting to test the theory that farmers can meet payments at other seasons than fall, traditional due-date for notes, reports of refrigerator dealers here show.

H. L. Nicholls, credit manager of the International Harvester Co., originated the idea when he discovered that approximately 40% of Colorado farm income is received between Jan. 1 and June 1, and that there are over 100 different sources of farm income. As a result of his tests, the Chicago office of International Harvester adopted the plan for nation-wide promotion.

### Conclude With 'Balloon Note'

Typical contracts for the northern Colorado irrigated farming country, as shown by Tony LaSalle, who operates refrigerator stores in Denver, Louisville, Longmont, and Greeley, show a series of payments which conclude with a balloon note at some time when the farmer expects a large income.

Nov. 20, when sugar beet farmers will be receiving large checks, is a popular balloon note date this year. Tony LaSalle, Inc. has found it possible, the company's head reports, to collect a great deal of money during the spring and summer, however.

Each of its contracts, Mrs. LaSalle says, is drawn up with the intent to adapt terms to income conditions. One contract, for example, called for a first payment in February, \$10 on May 1, \$15 on July 1, \$25.50 on August 15, and a balance of \$45.20 on Nov. 20.

### Farmers Don't 'Skip'

"There is far less grief in business with farmers than with city customers," is Mr. LaSalle's opinion. "We hardly know what a skip is in the farmers' districts. Most of us have customers who have lived in the district a long time. They may sometimes have difficulty in meeting the payments, but they have a determination to pay."

"By adjusting payments to income, we enter into contracts that we can reasonably expect the customer to carry out. Naturally, we get a concentration of payments at times when farm income is heavy; but, with most farmers, we can arrange payments pretty much throughout the year," Mr. LaSalle stated.

## C. B. Morris Appointed Chief Inspector for Fairbanks, Morse

CHICAGO—Appointment of C. B. O'Neill as chief inspector of home appliance products at Fairbanks, Morse & Co. has been reported by W. Paul Jones, general manager of the home appliance division.

Mr. O'Neill has set up complete inspection equipment and regulations governing the inspection of refrigerators, radios, washers, and ironers in the new Indianapolis plant.

## Earnings

### Servel, Inc.

EVANSVILLE, Ind.—A net profit of \$1,381,581 after depreciation, bond interest, federal taxes, and other charges, was reported by Servel, Inc., and subsidiaries for the quarter ending April 30.

After dividend requirements on the 7% preferred stock, the profit is equal to 77 cents each on 1,781,426 shares of one dollar par common stock which were outstanding at the close of the company's fiscal year on last Oct. 31.

This compares with \$942,238, or 52 cents, on 1,766,423 shares in the April quarter of 1935.

## Perfect ALIGNMENT Assures LONG LIFE!



**COPELAND**  
Commercial  
REFRIGERATION

ANOTHER important factor contributing to the built-in smoothness inherent in every Copeland Commercial Unit, is the perfect alignment of parts.

Here, too, science plays an all-important part through the development of measuring instruments capable of ultra split-hair limits. The Copeland manufacturing process makes full use of scientific measuring devices that insure perfect alignment. Crankshafts must be perfectly true; connecting rods must travel accurately, etc.

Copeland owners experience constant satisfaction with Copeland Units because of these safeguards. Your line should be the Copeland line. Write for territory opportunities, now.

COPELAND REFRIGERATION CORPORATION  
Manufacturers of a complete line of Household and Commercial Refrigeration  
Holden Ave., at Lincoln - - - DETROIT, MICH.

**Copeland**  
DEPENDABLE Electric REFRIGERATION

**FOR YEAR ROUND PROFITS**  
**WILLIAMS**  
**ICE-O-MATIC**  
*The Complete Line*

Williams Ice-O-Matic offers dealers a complete line for steady, year round profit. Household refrigeration. Commercial refrigeration. Complete line of Milk Cooling equipment, for electric or gasoline drive. Ice-O-Matics give satisfaction because of economy of operation and freedom from repairs. Write or wire for franchise details.

**WILLIAMS OIL-O-MATIC HEATING CORP., Dept. 623, Bloomington, Ill.**  
*World's Largest Specialists in Temperature Control*  
**Manufacturers Air-O-Matic, Ice-O-Matic, Oil-O-Matic**  
**WILLIAMS**  
**ICE-O-MATIC**  
REFRIGERATION ENGINEERED



*Now*

# 1 1/2 MILLION MORE FRIGIDAIRES

have been sold  
than any other make !

*Proof*

that Frigidaire outlets are profiting  
handsomely by the greatest public ac-  
ceptance ever awarded any refrigerator !

● The men who sell Frigidaire in the field are setting new marks of achievement this year. They are climbing with Frigidaire to new peaks of leadership.

We are proud of this overwhelming leadership. Not alone because of the supremacy in sheer numbers which it represents. But because it signifies that we have kept faith with our original aim and principle — to make not

merely a good refrigerator, but the world's finest.

"One and one-half Million More Frigidaires than any other Make" is to us a deep tribute of confidence from the buying public. And an inspiring reminder of record-breaking sales accomplishment by Frigidaire outlets everywhere in the world.

FRIGIDAIRE CORPORATION, Dayton, Ohio





## Hartford Utility Lowers Rates after Signing Contract with Farm & Home Authority

HARTFORD, Conn.—Electric Home & Farm Authority signed its first contract with a utility since its expansion last August to national proportions when it agreed to a contract with the Hartford Electric Light Co. recently. Cooperation in the financing of electrical appliance sales is provided under the EH&FA plan.

Simultaneously, the Hartford utility announced its new reduced rates.

The importance of the rate levels announced by EH&FA, says Samuel Ferguson, chairman of the board, Hartford Electric Light Co., lies in the fact that they recognize, as the TVA rates do not, that low prices for

small usage are unsound economically.

These rates do not specify what the price should be below 50 kwh. usage, leaving that to be governed by the costs as variously affected by local conditions.

It is important to note, Mr. Ferguson says, in the ultimate level that such amount of large use current as has been specified for it a price of one cent per kwh. is accompanied by an explanatory note that this is intended for storage water heating use or other off-peak consumption. This is in contrast, he explained, to the unrestricted one cent portion of the TVA schedule.

The reduced rates for commercial customers which are expected to stimulate the sale of commercial refrigeration and other equipment should save commercial users \$25,000 immediately, and \$350,000 eventually, Mr. Ferguson maintains.

"In addition to the new immediate schedule, there is a still lower objective schedule available to such customers as wish to make a material increase in their use of electric service. We expect that the greater volume of business to be derived in the near future from these reduced rates will soon make possible further progress toward lower prices," Mr. Ferguson said.

The immediate rate provides for a basis of 10 cents per kwh. for the first block of 50, stepping down to three and one-half cents for the next 1,000, to three cents for the next 1,000,

two cents for the next 2,000, and one and one-half cents for the next 30,000.

Under the objective schedule for increased use, the first block is the same at 10 cents, dropping to three for the next 1,000, two for the next 4,000, one and one-half for the next 25,000, and one cent for the next 170,000.

## Dealers Follow Up On Show with Series Of Radio Broadcasts

AMARILLO, Tex. — A cooperative electric refrigeration show, with follow-up in the form of a series of radio broadcasts from the stage of a local theater, has been effectively used this year by 15 dealers and a utilities company here to draw attention to the value of electric refrigeration.

Eight thousand people from a trade area of 400 square miles saw the refrigeration show during its three-day run early in the year.

Directly following the show, a 20-week radio campaign which will end Aug. 1 was started to give each dealer an opportunity to sponsor one program from the stage of the Paramount theater.

### Feature Amateur Contest

In order to secure entertainment value and sustained interest over the 20-week period, the programs feature an amateur contest in which five contestants appear each week for five weeks. The weekly winner receives a prize and the right to compete in the semi-final contest, held each sixth week.

Elimination of the semifinal winners will be held the last week of the series, with a grand prize of a trip to New York with all expenses paid, and an audience with Major Bowes.

At the end of each five weeks period, the program is sponsored by combined dealers, and the radio copy is devoted to general advantages of electric refrigeration. At the dealer broadcast, however, the dealer writes his own copy.

### Refrigerator Placed on Stage

Because of the drawing power of the theater "bank night," Friday was chosen for the broadcast. The stage is set as the studio of a radio station, with the featured refrigerator in artistic setting at one side.

At the refrigeration show, dealers found that the liveliest list of prospects was obtained from auctions, reports T. W. Gilstrap, of the Southwestern Public Service Co., where the show was held.

"When a prospect bids on a machine, even though he doesn't bid high enough to buy it, he is really in the market for one, and the dealer rarely ever fails to sell him later," he said.

"The recent show and present radio hook-up have stimulated higher living standards for rural and small town homes, which our dealers may expect to translate into actual sales," is the opinion of Carl Hare, of Nunn Electric Co., distributor of Leonard refrigerators.

### Other Advertising Used

On the theory that distributors' advertising must cover a much larger area than dealers', the Nunn Co.'s supplementary program includes lighted highway signs on all main thoroughfares of the Panhandle-Plains area, and radio advertising which ties up national advertising and local dealers' publicity by short daily broadcasts.

James M. Pryor, of the Brazelton Lumber Co., combines the sale of lumber with the sale of electric refrigerators and other appliances on the theory that "the lumber dealer of our day must sell more than shingles and nails for a home; he must sell all the comforts and conveniences that make home the grandest place on earth."

"For our individual advertising program, Mr. Pryor reports, "we use radio, demonstrations, and a model kitchen display at the lumber yard."

Radio programs, Mr. Pryor says, go out over the air in fifteen minute programs, twice a week, with most of the time devoted to the entertainment feature. This is followed by a brief sales talk, stressing the fact that Brazelton Lumber Co. will not only build and finance your home, but will equip it with the most modern electric appliances.

Brazelton Lumber Co. has the only permanent display of a completely electrified kitchen in West Texas so that there are visitors at all times of the year, according to Mr. Pryor.

His system includes holding frequent demonstrations to which crowds are attracted by radio and newspaper invitations to the public. Five salesmen in the electric department follow up the leads from the demonstrations, and interview prospective builders.

Although the combined program of Amarillo dealers makes people talk about electric refrigeration, Carl R. Schell, of the Amarillo Hardware Co. contends that in the final analysis,

actual sales result from personal salesmanship.

### How Prospects Are Found

An active list of prospects furnished to highly trained salesmen is the basis of his selling plan, Mr. Schell said. "We build up that list with two major projects a year. The first is the Amarillo News-Globe Cooking School, held for one week each winter, at which the dealer's product, Kelvinator, is featured.

Registration for prize drawings at a big demonstration in the store is the second prospect-getting stunt. A telephone campaign following the registration, during which each prospect receives a personal call, and interviews are arranged, sifts the registrations down to an interesting group from which actual sales develop, Mr. Schell reports.

Although the Amarillo dealers have no set organization, they have agreed on certain fair rules of competition, such as trade-in allowance on ice boxes of 10 cents per pound of ice capacity with a limit of 100 pounds credit.

In spite of the drought, when large crop failures are expected, Mr. Gilstrap said that refrigeration sales for 1936 are already higher than 1935, and, he continued:

"We expect as the outcome of the combined efforts of local dealers plus individual intensive campaigns, that 15% of our electric customers will buy new machines this year."

## Appliance Exhibit Will Be Held June 24-25 in Boston

BOSTON — Complete displays of electric refrigerators, radio merchandise, ironers, washing machines, and other electrical appliances will be exhibited at the Ninth Annual Radio and Electrical Appliance Show, sponsored by the Radio Wholesalers Club of Boston, which will be held June 24-25 in the Hotel Statler here.

The show will be open only to members of the trade. Attendance is expected to exceed that of previous years, in which as many as 3,500 have visited the displays. An entire floor of the hotel is reserved for the electrical appliance exhibits, and the hotel's facilities are such that merchandise using either direct or alternating current hook ups may be demonstrated.

Held early so that dealers may view new radio lines and formulate merchandising plans prior to the national political conventions, the theme of the selling campaign stressed at the show will be "Renew your radio receiver for the conventions."

Arrangements for the two-day event have been made by the following committee representing the Radio Wholesalers Club: Hollis Vaughan, George H. Wahn Co., chairman; James A. Dolan, General Electric Supply Corp.; David C. Rockman, George Collins Co.; L. A. Warner, Roskin Distributors, Inc.; and Alan Steinert, Eastern Radio, Inc.

## Charlotte Ferris to Head Appliance Home Economics Dept. for Westinghouse

EAST PITTSBURGH—Appointment of Charlotte Ferris as director of appliance home economics has just been announced by Harold B. Donley, manager of appliance department, merchandising division, Westinghouse Electric & Mfg. Co.

The rapid development of heating and table appliance sales and promotion, along with the change in merchandising principles, has made appliance home economics of sufficient importance to set up a separate home economics bureau, Mr. Donley explained.

Miss Ferris comes to the Westinghouse company from the Union Gas & Electric Co. of Cincinnati, where she was a specialist in consultant work, testing recipes, home service calls, demonstrations, and supervising general home economics work.

In addition to her work with the Union Gas & Electric Co. she has had considerable experience working with food in all of its ramifications, such as testing, diets, and menus.

## Oil Burner Specifications Chart Published

NEW YORK CITY—Mechanical specifications of 850 conversion oil burner models of 330 manufacturers, including the grade of fuel oil recommended for each model, are listed on a new chart, 1936-1937 Specifications Chart of Oilburners and Fueloil, issued recently by Fueloil Journal.

Also included are: specifications for 225 models of boiler-burner units of 74 manufacturers and 77 models of furnace-burner units of 28 manufacturers; a table giving both old and new fuel oil specifications; and three tables giving horsepower developed by fuel oil, approximate gravities and radiation that may be carried by one gallon per hour of No. 2 oil.

# As easy to sell as household refrigerators!



## Prospects on every street—models for every need—a package article, simple to install, simple to finance

Any dealer who sells household refrigerators can sell G-E Water Coolers. It's the ideal way to get into the commercial refrigeration business—the first step to a complete commercial refrigeration franchise.

Stores, shops, auto service stations, hotels, schools, banks, offices, mills, factories, etc., are all prospects for General Electric Water Coolers.

Public preference has made General Electric the leader in water cooler sales. You, too, will find them easier to sell because of their many exclusive features, including the revolutionary new G-E Foot Pedal Control.

★ If you haven't already received a copy of General Electric's new Dealer Plan Book on General Electric Water Coolers, ask for it today! Shows exactly how to build an attractive water cooler business in your territory. Points the way, step by step, to quick, easy sales and volume profits. Gives you everything necessary to go right after those water cooler profits *this summer!* Write or wire for it NOW. Address General Electric Company, Commercial Refrigeration Division, Section 6L, Nela Park, Cleveland, Ohio.



**GENERAL ELECTRIC**  
WATER COOLERS



## Around the World

With George F. Taubeneck

This instalment of the editor's travelog is being published without the usual quota of pictures owing to the fact that a package of films, mailed from Singapore several weeks ago, has not yet arrived (we fervently hope that it has not been lost in transit).

In this issue Mr. Taubeneck gives some of the highlights of his interview with Sir Herbert Gepp, a keen student of world affairs and an authority on the economic, political, social, and industrial problems of Australia.

Readers will be interested to know that Mr. Taubeneck has written the entire manuscript for a book on Australia based upon his own observations and information gleaned from numerous interviews such as the one with Sir Herbert Gepp.

The editor was inspired to undertake this sizable task as a result of his survey of the available literature on the subject of Australia. So far as he could discover, no books have been written recently which interpret Australia from the viewpoint of an American.

In view of the approaching presidential election, we believe that the book will be particularly interesting because it presents a very clear picture of Australia's long experience with certain political doctrines which have become familiar to U. S. citizens only since the advent of the New Deal.

The manuscript will be turned into type at once so that the page proofs will be ready for the editor's final corrections when he returns to Detroit sometime during July.

### Editor Interviews Consultant to Australian Government

#### Sir Herbert Gepp

One of the most interesting figures the writer has met on this extended journey is Sir Herbert Gepp, managing director of the Australian Paper Manufacturing Co., and Consultant on Development to the Commonwealth Government.

We had the privilege of a dinner-and-evening twosome conversation with Sir Herbert in Melbourne, and from him we learned a great deal about Australia, her problems, and her position in world affairs.

Among the sit-up-and-take-notice things he told us was this:

"If America wants to raise the volume of her exports, and better her position in world trade, she must take a more active hand in world affairs."

"America has a responsibility in world diplomacy which she refuses to assume. Australians resent that, as do British everywhere, and for that reason we have an aversion toward buying American goods."

Before attempting to increase its trade with Australia, America should study Australia's internal and international position, declares Sir Herbert. Here, then, are some of the things we should know:

Australians, it seems, more than Americans, realize the world's interdependence. Their experiences since 1930 have made them realize that they are an integral part of the great world of business, trade and culture, and that their prosperity depends in the final issue upon the prosperity of the great nations inhabiting other countries.

They know that the future of the British empire and particularly of Australia, is locking up with primary production, and so they are examining themselves with such questions as:

Is farming all over the world tending toward factory production?

Is the genius of the British race suited for peasant farming, or commercial?

Is it necessary to have the obviously inefficient small farm to maintain population?

Are we moving toward more education for leisure—a happy compromise between sufficient employment to remove fear of revolution on one hand and to maintain the physical and mental calibre of the people on the other? Or are we going to adopt, among the other systems, a system of peasant farming to help give jobs to all the willing workers in the world?

"We know," Sir Herbert said, "that the increased scientific and technical knowledge and ability which have enabled us to increase the output per capita labor in almost all industries, including the agricultural industries, have made us and all the other agricultural nations push our capacity to produce too far. We, and others, have developed production on rather too large a scale for the present world market."

"Subconsciously," he explained, "we are still calculating upon reduced yields of agricultural products in bad seasons and we are assuming that thereby surplus production affecting the prices of our products will be eliminated."

"However," he suggested, "apart from uneconomic production due to economic nationalism, and from the production due to a large number of agriculturists, we must accept as an axiom that seasonal conditions will have less and less effect in adjusting undesirable accumulations."

"This, of course," he said, "was not true in the past when adverse seasonal conditions in different parts of the world have adjusted over-production of foodstuffs, but nationalistic aspirations of many countries tend more and more rapidly to tie down and prevent the operation of this safety valve which kept the world of the past in some sort of equilibrium."

A factor to be considered, according to the Australian statesman, is that with the fear that the last war put into the hearts of all people came an enormous uprush of national self-sufficiency. The only method that could be devised quickly to act as a palliative for this fear was to employ the masses of people irrespective of "cold economics," because the governments feared the effects of unemployment.

With every nation struggling to maintain or improve its standard of living, the countries have been, and still are, Sir Herbert says, playing a game of beggar-my-neighbor without improving their own positions materially.

"Every movement to protect the industrial life of one country has increased the strain upon another country. Every hole stopped to prevent a tiny trickle of trade from without has clogged the circulation of goods throughout the world and contributed a little more to the suffocation of industry."

Only one remedy suggested seems to be possible to Sir Herbert, and that is the always unpopular method of retreat. "Some of the barriers must be taken down, and shy capital must be coaxed into the market-place again."

As things are now, he says, farmers and industrial workers face each other across a great chasm. Each group can produce in abundance far more than enough to supply the present normal needs of the other.

It would seem that the only way out is to increase the purchasing power of the masses. This, he believes, is the fundamental economic problem of today.

Elaborating on his theme that general world position affects fundamentally the outlook for the future of primary industries and the present position of the primary producers themselves, Sir Herbert said that a study of Australia's position shows that of all the people in the world, the Australian nation probably has the easiest task in the struggle to

maintain internal equilibrium and financial integrity. Australia's remarkable resources in relation to its population is the answer.

The secret, he says, is that its production for export includes numerous articles which are still salable in large quantities—gold, wool, wheat, flour, butter, and other milk products, hardwood timber, barley, fresh and dried fruits, sugar, meat, coal, lead, tin, copper, silver, and other materials.

However, even Australia's good luck, to this statesman, represents a responsibility, for, he maintains, "the greater the chances of maintaining a comparative prosperity the greater the obligation and necessity to contribute toward the solution of the world's problems. Upon this our own security and prosperity depend."

Some of Australia's problems, the

statesman told this writer, "some internal and others materially affected by world economics and uneconomics, are: financial equilibrium and rates of exchange; employment and unemployment; centralization and decentralization; disparities of standards of living between different sections of the country; natural, scientific, and technical leadership and education; the struggle between industrial codes of hours and wages and the determination of individuals and families and small partnerships to make and sell and live; the struggle between individualism and collectivism; the question of the desirability or otherwise and the practicability of relating interest rates to cost of living; the cost of production in relation to maintenance and extension of markets, and finally, the general problem of maintenance of morale, efficiency,

and cultural standards of the nations.

Those problems are pretty general the world over.

But a problem which Sir Herbert names as probably the greatest in Australia today, and the most unrecognized, is the country's declining birthrate. In a world where too many countries have dense populations crowded for space, the future of Australia will depend on population of the right type—"if we will not breed quantity, then we must breed quality."

"The next main problem," he told us, "is how far the individual is likely to be able, or even be permitted, to remain as a free agent in the matter of the production of goods."

"Probably," he hazarded, "the Anglo-Saxon and Anglo-Celtic races will be the last stronghold of individualism (Continued on Page 6, Column 1)"

## It's the Talk of the Town!



### G-E THRIFT-UNIT with Exclusive Forced-Feed Lubrication and Oil Cooling

• Every minute of every day somebody buys a G-E Refrigerator with the celebrated sealed-in-steel THRIFT-UNIT! Forced-feed lubrication and oil cooling is a definite and important improvement in refrigerator mechanisms—an exclusive G-E feature that means quieter operation, longer life and lower operating cost. Only General Electric has it! Only General Electric refrigerator dealers can feature it! General Electric Company, Appliance and Merchandise Department, Section 6R, Nela Park, Cleveland, Ohio.

#### PROVED BY EXPERIENCE!

G-E has made and sold more refrigerators with sealed mechanisms than all other manufacturers combined.

Research keeps General Electric years ahead!



### General Electric Sealed-in-Steel THRIFT-UNIT

in both General Electric Monitor Top and General Electric Flatop Refrigerators.

**GENERAL ELECTRIC**  
THRIFT-UNIT REFRIGERATORS



# Around the World

With George F. Taubeneck

(Continued from Page 5, Column 5)  
in a world tending in all probability toward collectivism."

And in this problem, and its relation to the monetary situation, Sir Herbert says that they have adopted the British genius for compromise—for making adjustments which will enable its affairs to continue always the same but always changing.

"Now accepting the view that money and credit were made for man and man for money and credit, we, in Australia, have decided," he said, "against a revolutionary change touching the nationalization of the means of credit, production, and distribution."

"We have devoted ourselves to a policy of compromise—well considered and well-discussed—of placing in the hands of a select body of citizens the responsibility of deciding from time to time credit policy, the rate of exchange, and the relative value of our Australian monetary unit."

"We are supporting the policy," he continued, "that our national credit must be used and loans raised to supplement the economic taxable capacity of the nation to achieve these objections, and to assist any section of the nation when its economic life is threatened by difficulties of market and prices which are beyond individual, sectional, or national control."

Sir Herbert suggests that we might consider two ways out of the economic morass in which the world finds itself. The first is to cheapen the price to the consumer and let the industries adjust themselves to the law of supply and demand. The second is to ration the production of, and exports from, exporting countries, and possibly at the same time to quota the imports into importing countries.

The consensus of world opinion, he believes, is against a policy of laissez faire, and from a review of the steps taken by the nation to overcome the present impasse, he deduces that some form of marketing control is considered essential.

"If we are to be rationed in Australia, and marketing control with guaranteed prices established for primary products which are at present free, we know from British experience," he said, "that we must guard against making the edifice top-heavy. The scrupulous must be protected against the unscrupulous, premiums must be paid for superior products, and dockage enforced against inferior articles. Further, the wants of the market, particularly its special wants, must be studied all the time."

"This scheme," he declared, "would

## Not Mahatma Gandhi



A fellow passenger on the S. S. Marella took this picture of George hard at work on the copy for that part of his "Around the World" series which appears in this issue.

necessitate the farmers learning to submit to a considerable amount of inspection and control. Eternal vigilance is the price of security in a marketing scheme as much as in national defense. Farmers must also, in spite of their present individualism, be prepared to take broad views."

He admits, however, that there are as grave dangers in control as in no control. Publicity and the regular publication of facts would help out here.

"The crux of the whole interesting struggle," in his opinion, "is to find first of all a compromise between, on the one hand, real national efficiency, and on the other, a fair deal to the consumer, a steady raising of the standard of living of the whole community, subject to reward and recognition of brains and energy, as against slovenliness and apathy, and the best kinds of thrift—that thrift based on immediate self-sacrifice for posterity."

In regard to the question of the world's monetary system, Sir Herbert said that he thought there was little doubt that the leaders of world thought are in general agreement on the principle that the stabilization of exchanges and the reduction of tariff barriers are the first two steps to take. But at present, he conceded, few governments are prepared to take them.

For Australia, the statesman suggested an economic general staff as essential. This staff could be in the

form of a standing committee working as nearly full time as possible, and representative of the best brains of the country. The nearest to that ideal now, he said, is the Royal Commission on State Disabilities. It is proposed, along this line however, to appoint a Royal Commission on Monetary Reform.

His conclusion was that in international affairs today, one man's guess is as good as another's.

"If, however, you are trying to make every nation adopt the principle of making things they can supply, and buying those they can't make cheaply, there are two vital bases: raise the standard of health and mentality—for you can't succeed if you're sick, and plan an international effort to finance the world while you're bringing health and education to the world's workers."

## On Shipboard

### Kaiser's Yacht

Although we have no official authentication of the story, it seems to be generally understood that T. S. S. Marella of the Burns-Philp line, operating between Sydney and Singapore, was built originally at the order of former Kaiser Wilhelm of Germany, for use as his private yacht.

Before the Kaiser could use it, (so runs the tale), the war came along, and it was bottled up by the blockade. After the war it was awarded to Burns-Philp in return for a vessel this line had lost to the Germans.

All the equipment is German, including two 15-hp. Con compressors which provide refrigeration for the two cold storage rooms (one containing frozen beef in transit, the other holding cargoes of chilled meat).

And so much marble! "I Dreamt I Dwelt in Marble Halls" was the theme song of many passengers; but the marble wall everywhere gave the writer the constant feeling he was in the Gent's Room of a railway station.

Capt. Donaldson of the Marella (his first name is Alexander, and he was certainly looking for new worlds to conquer—if you know what I mean) is said to be the finest navigator and most volubly proficient cussier in these parts, and we're quite ready to believe both.

The most treacherous waters along the Great Barrier Reef were strewn with stranded vessels—two of which we helped out—but Commander Donaldson took us through without a scrape. For one thing, he exercised caution. We approached dangerous Whitsunday Passage in a blinding storm; so he steamed back and forth before the "gates" for six hours until daylight came and the storm abated.

At Brisbane we took aboard the passengers of a stranded liner, and part of the cargo of a grounded freighter. Two days later the Marella answered the S. O. S. of the freighter Nalpa, whose engines had been disabled in the storm.

Luckily we arrived at its side about 7 a. m., so that we could all watch the exciting proceedings. After maneuvering to a position about 100 ft. to the port side of the Nalpa, the crew attached a line to a rocket, and shot it across to the Nalpa on the first try. This line was used to pull a heavy rope across, and the rope, in turn, to haul over a cable—which was made fast to each ship.

Great shouts and jumping on the part of the Nalpa crew greeted this feat, for they had been having a pretty rough time of it. Their boat was rocking in the rough water like one of those cars in the Ocean Wave at Coney Island.

All day we tugged the Nalpa, with little else of interest occurring except signalling between the two boats—semaphore flags by day, and Morse code flashlights by night. At 11 p. m. we dropped her in a quiet harbor, where her crew repaired the engines, and from which she continued her voyage (we learned by radio) under her own steam.

That afternoon an airplane roared out from Brisbane, with news photographers aboard to take aerial photographs of this marine procession of two.

### Gordon Howe, Hero

Third officer, GORDON HOWE, in whose watch the rescue took place, was the hero of the day.

Just under 30, bronzed and handsome, with a grand sense of humor, abundant energies, a swell tenor voice, and an incurably roving disposition, Gordon typifies the romantic aspects of the sailor.

On the job he is cold efficiency, tireless concentration. Off duty he is a jolly tar, cosmopolitan, interesting and interested, bright and witty. We enjoyed him immensely.

Every evening before dinner we joined Gordon, the Purser (another swell fellow), the Second Officer, and Second and Third Engineers in the Purser's cabin for a spot or two. There we traded stories (it's amazing how anecdotes go all around the world so

quickly), listened to yarns of the South Seas, composed limericks, and sang. It was grand relaxation.

### Shipboard Life

The Marella is a good rider. Outside of that and all the marble, it's not much of a ship. Its operators, Burns-Philp (a huge Australian shipping and trading concern, which supplies ceiba fiber to Dry-Zero, among other things), are notoriously "tight," and do little to make life enjoyable for its passengers.

Cabins are small. Food so-so. The soups were marvelous, and the desserts good, too. Fish was fair, meat tough, and vegetables—unpalatable. After a few days, we got down to the following formula: two soup courses, a nibble of fish, two desserts, and about ten minutes of cracking almonds and Brazil nuts.

It was frightfully hot most of the way, and a tiny swimming pool was a great relief. Five passengers had portable HMV gramophones aboard (between them they had just about the complete list of "FATS" WALLER records), which provided almost the only entertainment.

### Widows, TNT, Wealth

The writer got considerable work done aboard (for tangible evidence note all the copy on Australia), for which he feels like taking a bit of credit. There were distractions.

A big cargo of TNT was aboard, but that wasn't the only danger to make us jittery. There were the widows.

Every ship seems to have at least one American widow in her late thirties, with lots of dough to throw around, a penchant for getting up parties, and a predatory gleam in her eye. The Marella had three.

It's the writer's firm belief that if more American business men could take ocean voyages; there'd be less life insurance sold. (Do we have to draw a picture for you.)

Fortunately, there was a goodly list of interesting passengers to whom we could run when we heard the widows coming. Most of them were people of means. Catalog:

Australians—TOM CLARK, pearl fishing king from Darwin. Another Clark family (biggest hotel keepers in New South Wales), including a beautiful daughter. The Martins, of the Australian Woolworth chain stores. HAROLD MUNRO, Sydney lawyer. TOM ANDERSON, General Motors engineer, from the Holden Body plant, Adelaide. The Socialite Kellys, mother and daughter, (also a stunner), from one of Sydney's wealthier families. The Webers, from a cattle station in Queensland.

English—RONALD HORSLEY, engineer, headed for the Singapore fortifications project. BOB JONES, rubber plantation owner. A. D. STANTON, banker of London and Singapore.

Americans—JIM GARDNER, wife and baby daughter, Standard Oil engineer, specialist in asphalt road building. H. A. NAWELL and wife, proprietor of a chain of theaters in Chicago. The BLOCKS, father and two sons, jewelry manufacturers from

## Swimming at Sea



All must not have been hard work on the editor's trip on the Marella, as he evidently had time to visit the swimming pool to get this picture of Dorothy West, daughter of Arthur West, president of the Nevada-California Electric Corp.

Buffalo. Two wealthy young couples—BILL and ANITA ELLIOTT of Philadelphia, and BILL and JEAN GRAVES of Los Angeles.

The word soon got 'round that the busy chap with the typewriter was writing a treatise on Australia, and soon the whole ship was helping me—criticizing, approving, amplifying, correcting, and arguing with one another over various points.

### Arthur B. West

Most interesting man aboard, to the writer, was Arthur B. West, president of the Nevada-California Electric Corp., public utility holding company. Mr. West was traveling with his wife, sister, and daughter, Dorothy.

We are abashed to report that Mr. West had never seen ELECTRIC REFRIGERATION NEWS; but we soon remedied that situation. He is especially interested in air conditioning (he has conditioned his own office with a reversed-cycle heating-cooling installation), and we had many long talks together.

We found out some interesting facts about his company, which is a holding company with nine subsidiaries: The Nevada California Power Co., The Southern Sierras Power Co., Interstate Telegraph Co., Hillside Water Co., Cain Irrigation Co., The Imperial Ice and Development Co., Yuma Utilities Co., Nev-Cal Electric Securities Co., and Imperial Cold Storage Co.

Electricity is supplied by these associated companies to an area comparable in size to the state of Ohio. (Concluded on Page 8, Column 1)

**for FREEDOM FROM TROUBLE in the field USE ...**

**EXTRA DRY ESOTOO**

Moisture in the refrigerant—that spells trouble, as every refrigeration service man knows. ESOTOO—liquid sulphur dioxide—contains less than 0.0030% moisture! That's why service men all over the country use ESOTOO for domestic refrigeration jobs.

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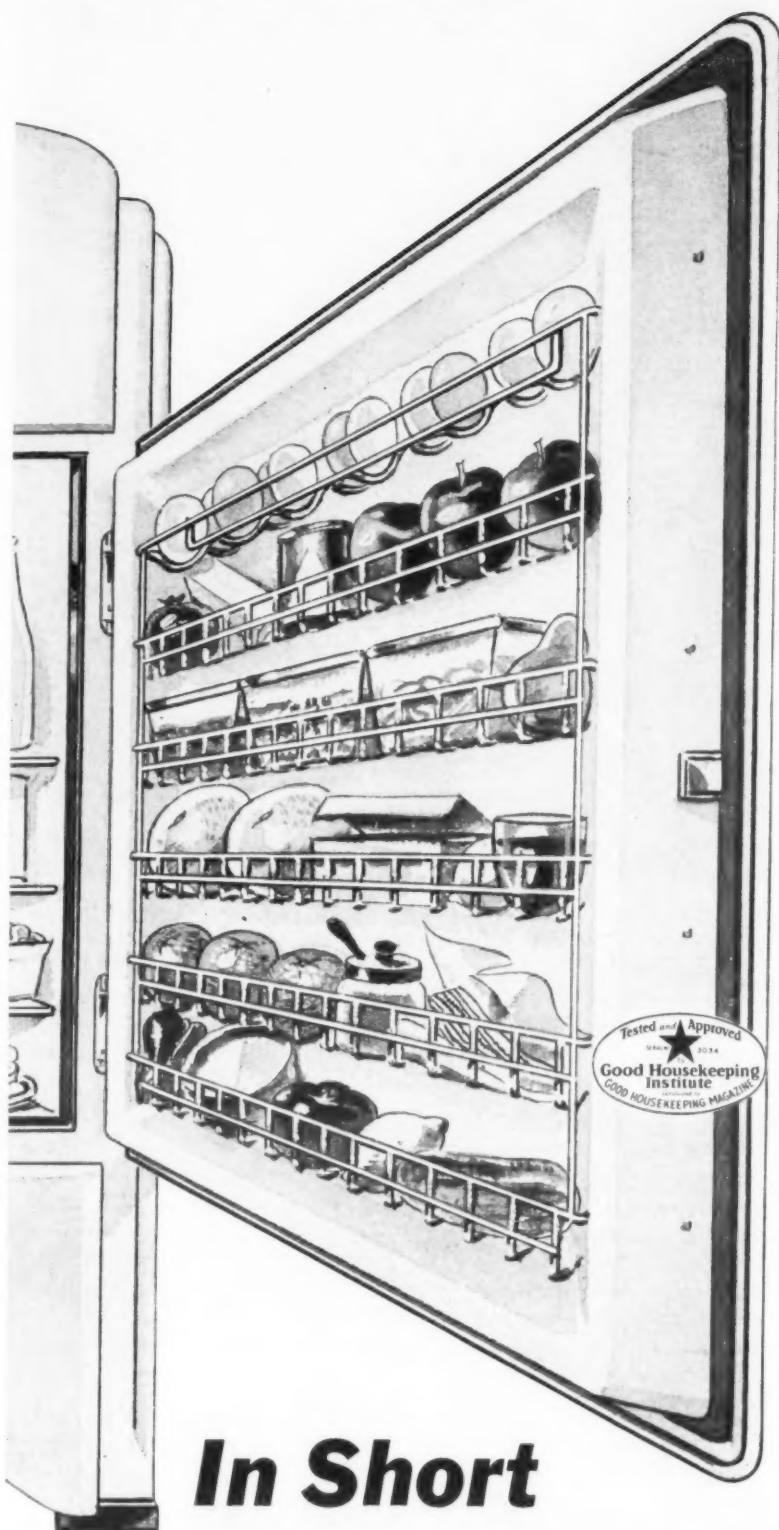
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## SHELVADOR IS TOUGH COMPETITION!

No one knows that better than dealers trying to sell other makes

**TOUGH** to sell against . . .

*this much more in a Shelvador*

**TOUGH** to sell against . . .

*the world's most beautiful refrigerator*

But mighty sweet to fall in line . . . To push the refrigerator that, for four consecutive years, has shown the fastest sales growth; the refrigerator that is now making merchandising history; the refrigerator that fits the millionaire's kitchen and the working man's purse . . .

**In Short**

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Priced from \$99.50 to \$244.95 including delivery and installation. Five-year Protection Plan. (All prices slightly higher in Florida, Texas, Rocky Mountain States and West.)

### SHELVADOR DEALERS' ENTHUSIASM REACHES NEW HIGH AS SALES AND PROFITS SOAR!

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**300% SALES INCREASE**

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**SELLS 1000% OF QUOTA**

• **from Ohio**

**SELLS SEVEN TIMES MORE THAN ALL COMPETITORS**

The American Housewife vote for Shelvador is at flood tide. Dealers are profiting as never before. Surely—Now is the time to tie up with the leader!

**THE CROSLEY RADIO CORPORATION**  
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Gentlemen:

Immediately on organizing this business, we took on the complete Crosley line.

Starting with a very limited capital, we have been successful in selling 280 Crosley Shelvadors in our first season, realizing quite a satisfactory net profit on our sales therefrom. Our inventory turn-over has been very rapid and our service expense has been low. Furthermore, our customers are uniformly happy and satisfied.

When Crosley first announced the Shelvador it appealed strongly to me and my experience in 1934 as Sales Manager for a company handling a competitive line made me appreciate still more the sales and profit possibilities with Crosley. It was hard competition.

The Crosley dealership is a real opportunity. An active organization can operate on a small investment, secure fast turn-over and make a real profit. Crosley gives you more than just a line -- it gives you a 12 months' business.

We do not feel it is necessary to handle competing lines -- for Crosley covers the field and Crosley acceptance -- created by WLW and Crosley advertising -- brings sales volume easily and quickly.

With the splendid cooperation of the Crosley factory and the Gambill Distributing Company, the Crosley wholesalers in this, the TVA territory, we look forward to a substantial increase in our business this next season.

With the new models and the "word of mouth" advertising of many satisfied Crosley users -- there surely will be a "sales slide" to Crosley in 1936.

Sincerely,

*E. L. Hyde*  
 ERLE HYDE, INCORPORATED

EH:LC

ALL MAKES OF RADIO SERVICED



## Around the World

With George F. Taubeneck

(Concluded from Page 6, Column 5)  
including eastern California for a distance of 500 miles from Mono Basin on the north to the Mexican International Boundary line on the south, the southwestern portions of Nevada

### Utility President



Arthur B. West, head of the Nevada-California Electric Corp., whom George Taubeneck met on shipboard in Australian waters.

and Arizona and an important section of lower California.

The California territory, he said, comprises 93.82% of the corporation's properties and accounts for 81.26% of its revenue, and embraces 33,000 sq. miles. A wide variation in climate,

estimated to consume annually 6,338-455 kwh. and to afford an annual revenue of \$105,935.

Active promotion of air conditioning in 1934 brought a reasonable revenue, Mr. West said, and started the company on the way to more important expansion during 1935.

At the end of 1935, saturation of the electric refrigerator market in the company's territory was 35%, as compared with the 31.2% in 1934. Electric ranges also reached a high saturation point with 22% in 1935, over 20.6% in 1934, and electric water heaters had a 13% saturation point in 1935, against 11.5% in 1934.

### Darwin North Australia

In Darwin we found that dream of every manufacturer—a government-protected monopoly. The Darwin Town Council acts as the electric refrigerator dealer for the city, and it brooks no competition. Since the make it handles is Kelvinator there's no other make of refrigerator to be found in that city.

The Town Council operates the electric power generating plant and also assumes authority and responsibility in all other matters pertaining to the use of electricity. So, if you decide you want an electric refrigerator, you wait until the Town Council meets, and then appear before that august body with a petition that you be

natural resources and industry, with a highly diversified requirement for electrical energy, gives this company a high system load factor and an unusual stability of demand.

Serving a population of 339,660 persons, the company has property holdings amounting to \$44,436,720.56.

Gross new power business contracted during 1934 amounted to 4,982 hp., allowed to order one. They grant the petition, send an order down to Adelaide, you pay over money, and in a couple of months, maybe, you get your Kelvinator.

Seventeen Kelvinators had been installed by the time of our arrival. The nearest thing to a commercial job was an upright, wall-type 14 cu. ft. Kelvinator in a restaurant which advertises "Zero in the Tropics."

Every person who gets off a boat at Darwin labours up the heart-testing climb to the main street from the wharf, and finally sees this sign, rushes for the restaurant as fast as his leaden legs will carry him (about eight yards per minute). And what a disappointment! No air conditioning at all—just this big food cooler.

Of all the places we've visited yet, Darwin needs air conditioning the worst. It is without doubt the most accursedly uncomfortable spot the writer ever expected to survive. Terrible heat, frightful humidity.

And nothing about the place compensates for the discomfort. It's as dead as Goldsmith's Deserted Village, with galvanized iron buildings of the same architected type as those seen in TOM MIX movies. Dirty aborigines and Chinamen haunt the place. And for the few godforsaken whites who live there—nay, exist—in Darwin, there isn't much to relieve the tedium except drinking. But that they do right heartily. We have an idea that the per capita consumption of beer in Darwin is the highest in the world.

The white men who are there have things pretty well under control. They are lazy, shiftless good-for-nothings, most of them—but they are completely and autocratically unionized. At present they live off the boats which stop there; and their unloading of a ship's cargo is the most amazing study in slow motion you'll ever see.

Twenty minutes out of each hour they take off for a "smoker." And as my friend, Third Officer GORDON HOWE of the T. S. S. *Marella*, pointed out, the only difference between the working periods and the "smoker" periods was that during the former they sat around in the sun, while during the latter they sat in the shade.

It took two days to unload the *Marella* at Darwin—a task which should have been completed in five hours.

Darwin once was a busy port. It was the outlet for great cattle and sheep stations, as well as for tropical plantations (sugar, rice, maize, tobacco, pineapples, bananas, citrus fruits). But union labor spoiled all that.

The Vestey packing interests (with Bovril, Great Britain's largest) erected a \$5,000,000 meat packing and freezing plant at Darwin. Starting out with a minimum wage of \$20 week, the Darwin union forced the price of labor higher and higher, until it was no longer economically possible to operate the plant—not even to save the great capital investment.

For five years now that mighty abattoir has been rusting away. A small staff of men stay there now to keep it in what state of maintenance they can, just in case a miracle might happen, and the Darwin union decide to quit cutting off its own nose (or, another miracle might occur; the "White Australia" policy might be abandoned). But the caretakers say that if these miracles are going to come to pass, they'd better hurry, for within five years the plant will have rusted and deteriorated quite beyond hope of salvaging.

In the meantime Darwin has been depopulated, other trading and commerce has vanished, and today the city sits rotting in its own steam.

Darwin has no rail connection with the cities further south, depending solely on boats for its beef and mail. Even the steamship service has been cut down since an incident at unloading time in Darwin caused the Dutch (K. P. M. line) steamers to discontinue their stops at that port.

It seems that the captain of a Dutch ship was impatiently watching a fine exhibition of Darwin's famous slow-motion unloading (working on an hourly basis, they stretch it out as long as they can). One bewhiskered old coot was dragging along extra slowly, and the captain shouted at him (we can imagine what it must have been like, after listening to the blasphemous brimstone of Commander Donaldson of the *Marella*). Startled into unaccustomed action, the stevedore tripped and fell. The captain laughed uproariously.

Indignant over this "insult" to one of their kind, the entire "union" quit work, and refused to continue the unloading until the captain publicly apologized to the stevedore. Contemptuously ignoring their demands, the captain immediately put out to sea.

## 'International' Banquet in Palestine



When Editor George Taubeneck visited Tel-Aviv, Palestine, he was banqueted by Levinson Bros., exclusive Westinghouse distributor for Palestine and Transjordan. The above photograph, just received by the News, shows the affair at the Hotel Ritz, where George (second from right) met the heads of various departments in the Levinson organization (engineers, commercial and domestic service managers, domestic and commercial sales managers).

The personnel of the Levinson organization is representative of a wide variety of nationalities, as is demonstrated by the list of those attending the banquet: Levinson Brothers, Russian, engineers; Mr. Zyww, American, engineer; Mr. Tauman, Polish, managing salesman; Mr. Engel, Canadian, engineer; Mr. Schick, Russian, accountant; Mr. Rusetzky, Polish, warehouse manager; Mr. Digany, Palestinian, salesman; Mr. Shpitzer, Czechoslovakian, engineer; Mr. Maersdorf, German, engineer; Mr. Goldman, Polish, engineer; Mr. Glickman, American, engineer; Mr. Shapiro, French, engineer; Mr. Lampel, Austrian, engineer; and Mr. Kramer, Latvian, salesman.

Scarcely had the Dutch boat's screws started churning up the water when the inhabitants of Darwin realized that amongst the unloaded cargo was their supply of beer. They boarded a launch, chased the Dutch boat out to sea, and frantically begged the captain to come back with the beer, and no apologies needed. They were haughtily refused, and went thirsty for weeks.

Since that time Dutch boats haven't been calling at Darwin (although they may be by the time this is published). And even more interesting is the fact that the skipper of all the ships which stop at Darwin make it a point to unload

the beer last. Thus they are sure of getting the cargo all out of the hold; and, if the beer supply has run low, they sometimes see a little action.

North Australia, which has an area of 525,000 square miles, is said to have only about 2,500 white people. Some 1,500 Chinese, who run all the "stores" and do all the trading for the territory give Darwin quite an Oriental flavor. The remainder of the population is aboriginal—about 24,000 of them, including half-castes.

It was among these latter that we spent our time during the stop-over at Darwin, learning the information which we will relay to you in the section on Australia's "abo's."

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Years ago KRACK Engineers knew that steel coils, and only steel coils, were correct for use with Ammonia, CO<sub>2</sub>, or Brine. No other material has ever been used in SUR-E-FEX coils designed for these refrigerants.

Always KRACK Products have met, scientifically and practically, the needs of the user. As new needs arise we experiment to solve them. For this we use our own research department. No experimenting on the user's premises.

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KRACK Prices are based, not on production anticipations, but on costs determined through actual experience in the production of tens of thousands of SUR-E-FEX All-Steel coils during the past 5 years!

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Your manufacturing costs can be kept down to a minimum in styling refrigerator hardware to harmonize with the appearance of your cabinet, if you will consult our staff of engineers as soon as you begin to consider cabinet designs for 1937.

Our Engineering facilities have made it possible for us to cooperate very closely with designers and engineers of the leading manufacturers.

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## Commercial Uses

### Engineers Overcome Building Design in Installing 6 Units

BROOKLYN—Because the mammoth new Lundy's Restaurant overlooking Sheepshead Bay had no basement in which to install compressors for its refrigeration system, York Ice Machinery Corp. engineers were faced with the problem of placing six self-contained Freon condensing units at strategic and inconspicuous places around the building.

W. A. Smylie of the York Brooklyn office sold the installation which now includes a representation of practically every type of refrigeration equipment. The restaurant seats 1,500 people in the downstairs dining room, and in the open-air roof garden.

#### Seating Capacity of 1,500

The complete installation, York officials report, gives the new restaurant one of the most comprehensive and widely diversified refrigeration systems in the New York restaurant field.

The new quarters overlook Sheepshead Bay, and have a seating capacity of approximately 1,500 people. Two large dining rooms, one on the first floor, and the other a roof garden which can be readily transformed into an open-air dining hall, are used to seat the large crowds.

#### Space Found Under Stairway

Of modern steel and concrete throughout, the new building is located directly across from the location occupied by Lundy's for several years previous.

Space for two of the machines was found under a staircase in the kitchen. Of these, a 2-hp. machine serves a 5x3x7 ft. short-order box, a 12-ft. double-duty case, one 5x2½x3½ ft. meat box, one Filtrine beer cooler with five taps, and one 10x3x7 ft. short-order box.

#### Supply Cold Water

The second of these two, a 3-hp. machine, refrigerates a York water cooler, which supplies cold drinking water to 10 stations on the main floor, and a second cooler serving 10 stations on the second floor.

Two more machines, a 2 hp. and a 1½ hp., were installed in the rear annex adjoining the kitchen. The 2-hp. unit supplies refrigeration for a meat storage box 20x8x10 ft. and a vegetable storage case of the same size, while the 1½-hp. unit cools one bakery box 5x3x7 ft., two short-order boxes each 5x3x7 ft., a melon box 6x2½ ft., and a fish box 5x2½x3½ ft.

#### Other Locations Used

The fifth refrigerating machine was installed under another staircase, adjoining the clam box. This machine cools the large 17x8x7 ft. refrigerator.

Most unique in location is the sixth unit, a 3-hp. compressor. This was placed in a niche directly above the beer box, and was completely furred in with a decorative grille over the opening, so that York engineers say that its presence is not suspected by the casual observer.

Its function is the cooling of two beer dispensers each equipped with one water tap and six beer taps. This machine also cools a beer storage room 8½x8½ ft., and a back bar.

### Model Refrigerated Truck For Meat Distribution Shows Improved Design

TERRE HAUTE, Ind.—To demonstrate current improvements in the design of mechanically refrigerated truck bodies for use in the distribution of meats and other packing house products, the Giffel Body Mfg. Co. has built a demonstrator body for display to packers and contract haulers interested in refrigerated equipment.

Refrigeration is supplied by Kold-Hold units, which are hooked up with a Kelvinator condensing unit carried under the right-hand rear portion of the body.

Temperatures between 30° and 40° F. are claimed to be maintained by the refrigerating equipment. Four inches of Dry-Zero Sealpad in the roof and sides and 4 in. of cork in the floor insulate the body, which is lined with cypress. The entire floor is covered by maple racks.

The streamlined demonstrator body, mounted on an International chassis, is 12 ft. 7½ in. long, 7 ft. 4 in. wide, and 7 ft. 4 in. high, and has a load capacity of 4 to 5 tons.

### G-E Air-Conditioning System Installed in Vaults for Furs

LOS ANGELES—Vogue Furs, Inc. has just completed installation of a General Electric air-conditioning cold storage system in the vaults of the Merritt Building Safe Deposit Co.

This modern system will enable Vogue to permit withdrawal of furs at any time without notice, and also makes possible the additional service of placing furs back into storage without extra charge.

The equipment, which consists of a CMF-SW and an EC-19 unit, was sold by Ted Chamberlain and Louis Fix, commercial representatives of the George Belsey Co., Los Angeles distributor.

### Super-Cold Makes Display Case Over for Use in Cooling Beer

LOS ANGELES—Super-Cold Corp. has thought up a new use for its Model 300 refrigerated display case.

With the coils and drain pans removed, an extra shelf installed, and a blower coil added, the 6-ft. case makes an ideal beer and storage case.

The unit, it is claimed, will hold 31 cases in all—130 cans on the second deck, 296 pint bottles on the first and third decks, and 154 quart bottles on the lower deck.

For installations of this type, a ¼-hp. condensing unit is used instead of the conventional ½-hp. machine. List price of the unit is \$595, same as that of the regular Model 300.

### Chinese Government Modernizes Shanghai Fish-Freezing Plant

SHANGHAI, China—Modernization of this city's large fish-freezing plant, to be known as the Shanghai Fish Auction, recently taken over by the Chinese government, means that all fish coming into the port of Shanghai for local consumption will be collected, refrigerated by modern equipment, and delivered to various parts of the city.

The installation, it is reported, represents a step in an intensive program of modernization which is being undertaken by the government, through which control and operation of many industrial plants throughout China is gradually being taken over by the Chinese Ministry of Industries.

York Shipley Fed., Inc., Shanghai branch of the York Ice Machinery Corp., secured the contract for furnishing and installing the machinery. Three 10 in. x 10 in. two-cylinder ammonia compressors, and two 24 in. x 16 ft. shell and tube condensers are included.

Other plants which are being bought and operated by the Ministry of Industries include agricultural plants, textile plants of various kinds, chemical plants, steel mills, mines, and other industrial enterprises.

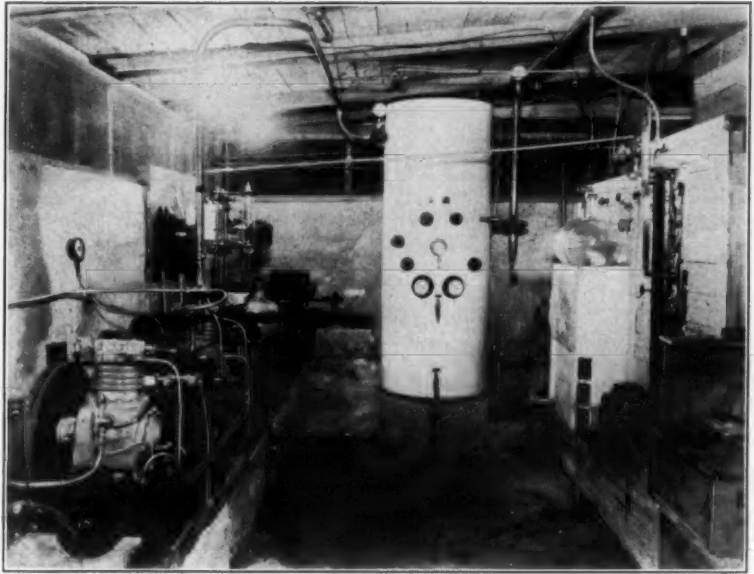
The government's entry into the fish industry, many believe, is an example of the trend toward the adoption of American ways, particularly in the direction of modernization of machinery and methods.

Among other indications of this is the recently erected York air-cooled auditorium in Shanghai, seating 3,000 people.

### 2 Refrigerators & Water Cooler Sold Hospital

KILGORE, Tex.—A refrigerator in which to keep serum, another for the kitchen, and a water cooler to furnish water to the entire institution was recently purchased by the Kilgore hospital.

### Low Temperature System for Serum Making



At the left in the picture above are the Frigidaire compressors with specially designed condensers and heat interchangers which produce -40° F. temperatures needed for the manufacture of special types of serums at the Pottenger Sanatorium in California.

### Frigidaire Unit Produces Temperature of 40° Below Zero for Manufacture of Tuberculosis & Asthmatic Serums

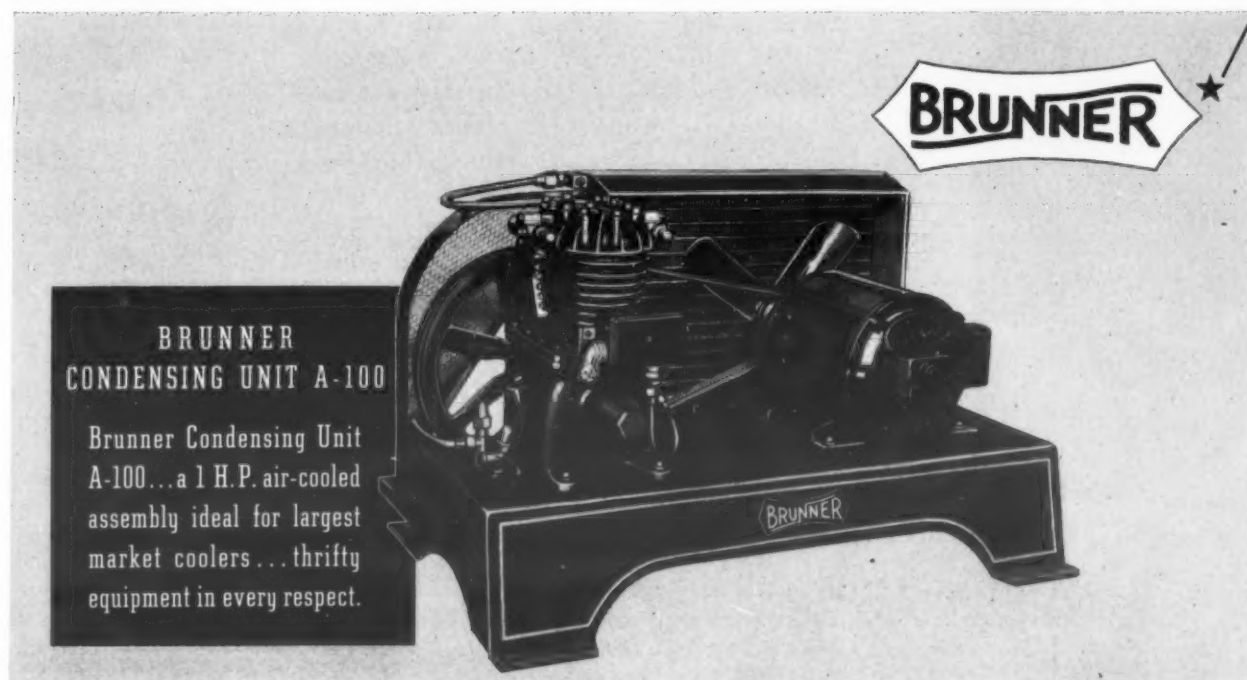
MONROVIA, Calif.—Forty degrees below zero temperature, required for the manufacture of serum for tubercular and asthmatic treatment, is being produced at the Pottenger Sanatorium here in a newly installed refrigeration system designed by Frigidaire Corp. in collaboration with Dr. Francis Pottenger, Jr., director of research for the sanatorium.

Extreme vitality and uniformity are necessary in the serum, which is made from the extract of steer supernal

glands; and refrigeration helps maintain that standard of quality, Dr. Pottenger says.

Two compressors and a specially designed condenser and heat interchanger accomplish the goal of extreme cold. Refrigeration is used in conjunction with a still and condenser in which the required distillation of the extract is carried on. A large refrigerated cabinet nearby is used for storage of the glands awaiting processing.

## REFRIGERATION UNITS, TOO, HAVE THEIR *Hall Mark*



### BRUNNER CONDENSING UNIT A-100

Brunner Condensing Unit A-100... a 1 H.P. air-cooled assembly ideal for largest market coolers... thrifty equipment in every respect.

So sterling a record for dependability have Brunner Refrigeration and Air Conditioning Units built up in almost every phase of the industry that more and more is the name "Brunner" recognized as an official stamp of quality. And to back up this reputation is a sales record which is truly phenomenal! Check through the well-balanced list of Brunner features—you'll see at a glance why Brunner offers so much more for

every dollar invested: sturdy, compact assembly... quiet, vibrationless operation... untiring efficiency—and all at low power input! Brunner offers equipment for all applications requiring from 100 lbs. to 15 tons of refrigeration—forty-seven condensing units, five compressor models from 1/4 H.P. to 15 H.P., air and water cooled. Full particulars gladly sent on request. BRUNNER MANUFACTURING CO., UTICA, N. Y., U. S. A.

## BRUNNER CONDENSING UNITS and COMPRESSORS



## Home Service

### G-E to Market Unit Electric Kitchen for Low Cost Houses

CLEVELAND—New unit kitchen designed for low cost homes, apartment houses, and for home modernization, has been introduced by the appliance and merchandise department of General Electric Co. The combination includes electric refrigerator, range, dishwasher, and kitchen cabinets.

Designed for flexibility, the new kitchen may be installed as a packaged article or purchased on the step-by-step plan, and is in accordance with the kitchen modernization program of Edison Electric Institute and other similar programs, reports George Kobick, manager of G-E's apartment house division, and head of the kitchen development program.

At the Sixteenth National Conference of the National Association of Mutual Savings Banks at Atlantic City, May 13-15, where it was first on display, the unit kitchen attracted a great deal of attention, Mr. Kobick says.

Cabinets of the all-steel outfit have adjustable shelves, a new departure. Work surfaces are of black porcelain on steel and are resilient, according to Mr. Kobick.

A new type electric dishwasher of front loading design, with a capacity of 50-piece service, is also used.

### 65-Page Recipe Book Is Published by Kelvinator

DETROIT—Containing a collection of 125 varied recipes for food dishes of the familiar, delicious, simple-to-prepare type, an attractive 65-page booklet, titled "The Kelvinator Book of Recipes," was issued recently by the Kelvinator Corp.

Preceding the eight principal recipe sections, in which are included all types of dishes from entrees and appetizers to parfaits and ices, are suggestions on meal planning, economical buying, and use of leftovers. Additional features are menu charts, measurement tables, and range temperature and time scales for guidance in cooking various kinds of foods.

Last 15 pages of the book are devoted to range cookery. Topics covered in this section include: surface cookery, oven cookery, meat cookery, broiling, recipes for meals cooked in the Kelvinator Economy Cooker, and menus for oven-cooked meals.

The book is attractive in appearance. Its stiff, beveled paper cover has a black background with an impressionistic red and white design. Vivid color illustrations precede each of the main recipe sections, and small photographic reproductions, or red white outline drawings decorate other page corners.

### 3 Radio Broadcasts Boost Utility Sales

FRESNO, Calif. — Increasing its activities through three series of radio broadcasts conducted by Miss May E. Layton, director, the home service department of the Valley Electric Supply Co., merchandising division of the San Joaquin Light & Power Co., has been able to establish contact and increase the sales of electrical appliances to housewives in the 200 mile area covered in the company's territory.

Most recent of the department's broadcasting activities was a 13-week Household Hint Contest in which \$1 prizes were offered for the five best hints submitted each week. In the contest 1,284 housewives sent in a total of 5,400 suggestions. Each of the entrants received a 52-page booklet, compiled by the company at the contest's close, in which was contained the prize-winning suggestions, and the story of the use of electricity in the home.

The first series of radio broadcasts introduced by Miss Layton over a local station in the fall of 1934, consisted of skits and programs designed to aid dealers in the territory in merchandising electrical appliances. Before inaugurating this promotion, Miss Layton, who has been with the power company for seven years, had had extensive field work.

Features of the second group of radio programs broadcast last spring, were recipes and discussions of home-making topics by guest speakers, among whom were clothing experts and stylists, interior decorators, meat experts, and others.

Other activities of the power company's home service staff include dealer contact and demonstration work, in which an all-electric Kitchen Coach is used.

### Omaha Bureau Puts Kitchen Campaign on the Air



Miss Edwina Nolan (left), home service director of General Electric's specialty appliance department, looks over some electric kitchen promotion with Mrs. Hester Peters, president of women's division of the Omaha Chamber of Commerce, who was hostess at the second broadcast of Omaha's Electric Kitchen Bureau.

### Omaha Kitchen Bureau Sponsors 8 Radio Programs with Guest Home Economists Giving Cookery Demonstration

OMAHA—Among the first of the local Kitchen Modernizing Bureaus to instigate a major promotional campaign centering exclusively on kitchen modernization, the Electric Kitchen Bureau of Omaha is now sponsoring a series of eight weekly one-hour radio broadcasts, in which cookery-demonstration talks given by guest home economists' tie-in with advertising announcements designed to increase dealer sales of complete electric kitchen set-ups.

First of the group of eight one-hour programs was broadcast April 28 from the G-E kitchen of Electrical Housekeeping, Inc. here, with Miss Edwina Nolan, home service director from General Electric headquarters at Nela Park, in charge.

Planned as a complete merchandising program to aid dealer sales, the broadcast promotion operates in this way: each week a different women's club president acts as hostess for the radio program. Visiting lecturers, among whom are manufacturers' home service directors and food and equipment editors from national

magazines, conduct the demonstration part of the program with the assistance of a home service advisor of the Nebraska Power Co.

Broadcast time is scheduled so that 36 minutes are given to the demonstration, and the remainder of the time is devoted to entertainment.

Special feature of the series is the kitchen planning contest being conducted until the final broadcast, at which time prizes of three major appliances and 25 smaller appliances will be given. More than 600 women attended the second broadcast, also conducted by Miss Nolan, in Hayden's department store.

Others scheduled to conduct demonstrations in the broadcast programs include: Julia Kiene, *Capper's Farmer*, Mable Turner, Hotpoint Co., the Chef of the Paxton Hotel, Omaha; Ester Kimmel, food editor, *Pictorial Review*; Miss Nolan will conduct the two final broadcasts.

The promotional activity is being given extensive newspaper advertising by the Bureau, the dealers, and the radio station.

### 15 Suggestions on Care of Refrigerator Are Made by Home Economist

DETROIT—Because a knowledge of food placement and care of the refrigerator will enable the housewife to obtain greater service from this appliance, this two-fold subject was given prominence in home economists' talks and articles reported in connection with the *Detroit News* refrigeration show held here recently. The following 15 points were set up by Home Economist Edna Vaughan:

1. Milk should be placed next to the chilling unit, which is the coldest spot in the refrigerator.
2. Meat should be unwrapped, wiped off with a damp cloth, and placed in a tray under the chilling unit. It will then keep for several days provided the temperature is low enough.
3. Butter requires a covered glass or porcelain container. Remove carton or paper covering.
4. Fish demands special attention because of its odor. Remove wrapping, cover with wax paper, and place in an ice cube tray.
5. Keep eggs in a wire basket to permit ventilation. Carton boxes absorb cold and take up extra space.
6. Cheese should be put nearest the chilling unit. It should always be kept in waxed paper or covered dish.
7. Bananas should not be put in the refrigerator. They have a better flavor if ripened outside the box.
8. Melons should be put in only for chilling, and should first be wrapped in wax paper to prevent their odor from permeating the refrigerator.
9. Soft fruits or berries, peaches and the like, if spread out on a long tray keep in better condition. Solid fruits need merely be washed.
10. Wash vegetables and blot dry with a clean towel before putting into the hydrator.
11. It is best to defrost the refrigerator when the frost reaches one-fourth inch. A heavier frost retards refrigeration.
12. Wash interior of the refrigerator at least once a week with warm soda water.
13. The refrigerator should be dried

immediately after washing because excess moisture necessitates more frequent defrosting.

14. When the refrigerator is cleaned the ice trays should be washed and water changed in them.

15. If the refrigerator is left for any length of time all food should be removed, all water taken from the ice trays. Leave the door slightly ajar.

### MERCHANDISING PLAN for REFRIGERATORS equipped with SCURLOCK KONTANERETTE KITS

For All Refrigerators  
Plan No. 2

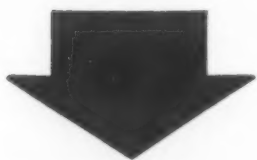
When the refrigerator is sold, the various models of Kontanerettes are displayed on a table nearby, telling the customer that you have arranged for this accessory equipment to be placed in the refrigerator and add the cost thereto, costing her only a few cents a month to have this equipment.

There is no reason why a customer should leave your store and purchase this equipment for cash in other stores, when you are the one who is selling them with the refrigerator.

You can make this extra sale at the same time you sell the refrigerator. It means building good-will and adding many additional dollars in sales volume for you each year.

Approved by Good Housekeeping Institute

Write us for this sales Plan  
SCURLOCK KONTANERETTE CORP.  
1477 Midway - Chicago



**Cordley Equipment can increase your profits THIS SEASON!**

If you intend to take advantage of the opportunity for extra profits that Cordley Water Coolers offer, *do it now*. Find out all the details before you are in the midst of your prime selling season, too busy to give time or attention to this important sales outlet. We'll gladly send you full information on request... but don't delay!

## THESE Profits STICK

**T**HE kind of profits you are interested in are those that *stick*. Refrigeration dealers handling Cordley Electric Water Coolers not only make a profit on every sale—a generous one, too—but it isn't eaten up by service costs. Further, these sales are the sort that make friends. Which is another and more important profit, one of a permanent nature, the good-will that will build a prosperous future for your business.

The best evidence of the satisfaction that Cordley Electric Water Coolers will give you is what others have to say. Here are a few typical excerpts from letters we are constantly receiving:

"We find the Cordley Electric Cooler a superior cooler . . . requires very little upkeep." "These coolers have been 100% at all times." "Are so satisfactory and economical to operate that . . . we will specify Cordley only." "Have had favorable comments from all our customers." And from service organizations, "Our experience with your cooler has been most satisfactory. Accessibility makes service economical to handle." "Service and repairs are very light."

Cordley Equipment is ideal for reaching the large market that exists for water coolers, a market that is ready and waiting for you. With these attractive units you can obtain extra sales and extra profits . . . for they are compact, efficient, durable . . . the product of an organization with nearly a half century's experience in the water cooler business. Write now for full details of the Cordley proposition and a complete description of the coolers. CORDLEY & HAYES, 145 Hudson St., New York, N. Y.

**CORDLEY Electric WATER COOLERS**



## Mrs. Meek Explains How Hudson's Home Service Work Helps Sell Appliances

By Winifred B. Hughes

DETROIT—During the month of March when the J. L. Hudson Co. department store held its 8th Annual Refrigeration Show and Spring Display, 1,905 persons attended the cooking schools sponsored by its Home Advisory Service Bureau, and 2,985 pieces of literature were given away in connection with the classes.

These figures are but a sketchy indication of the scope of one activity by which the Bureau, under the direction of Mrs. Jessica Meek, has become an important feature both in attracting floor traffic to Hudson's refrigeration and housewares section, and in providing a service department where Detroit housewives seek information on household subjects which include everything from how to make a cherry pie to plans for remodeling, decorating, and equipping a kitchen.

Cooking classes were held at 2 o'clock five afternoons a week in the blue-and-cream electrically equipped model kitchen which is mounted on the stage of the open auditorium arranged at one end of the store's electric refrigeration department.

### 125 to 150 Is Average Attendance

"Average attendance at our classes is between 125 and 150 persons, although we sometimes have as many as 200 at one class," Mrs. Meek said. "We try to have an especially interesting program for Saturday afternoons, because so many men come into the department with their wives on that day."

One reason why the demonstration talks regularly attract good sized audiences is because well-known guest home economists are featured.

"We plan our month's program a long time in advance and arrange to have a different guest speaker conduct each week's classes, varying the subjects of each talk.

### Home Economists on Program

Home economist representatives who have spoken include Mrs. Dorothy Merwin of the National Enameling & Stamping Co., manufacturer of Nesco Electric Roasters; Miss Phillis Harris, Kelvinator Corp.; and Miss J. Helen Bingham, director of home economics of the Verner Gingerale Co.

Two speakers on the May program were: Mrs. E. Walker Banks, home service representative of the Westinghouse Electric & Mfg. Co., and Miss Irene Hickey, director of home economics, Detroit City Gas Co.

Small pictures of the guest home economist, together with the announcement of her topics, are printed in the houseware department's insertion in newspaper advertisement, and in the *Shopping News*, and folders outlining the month's program are distributed to the classes, and placed in convenient locations throughout the housewares section to publicize the cooking classes, Mrs. Meek explained.

### No Attempt to Get Names

While no attempt to obtain prospect names is made in connection with the lectures, they are definitely influential in building the refrigeration department's sales, according to Mrs. Meek.

"Salesmen often come to me after one of our cooking demonstrations and say that they have just sold a refrigerator to someone who came from the class."

"Not so long ago," she continued, "we had a class which didn't break up until almost four o'clock (most of them only last about an hour and a half) and from that time until closing, four sales were made to women who had attended the class."

But cooking classes are only a small part of the activities of Hudson's Home Advisory Service Bureau. Others include conducting a recipe service, meal planning, supplying menus for large group parties, and for smaller home entertainments, helping the customer in problems pertaining to remodeling and redecorating her kitchen, and giving advice on the selection of major appliances, dishes, glassware, and kitchen and breakfast room accessories.

### Personal Service Stressed

To get customers into the department, the Bureau in all of its functions stresses personal service to the customer. To achieve this purpose, each of the five assistants on Mrs. Meek's staff have charge of a particular phase of the work.

"Right now we are particularly interested in kitchen planning," Mrs. Meek stated. "I devote most of my time at the present to this work because we have received so many calls from housewives who want to remodel their kitchens."

"This increasing interest shown by housewives in kitchen modernization," Mrs. Meek believes, "is partly due to the fact that people are entertaining more than they used to, now that their incomes have increased, and partly because they have been edu-

cated to realize how much they can lessen their work through the use of major electrical appliances, conveniently arranged, in their kitchens.

"Many of them who come in for suggestions on how to improve their kitchens bring the blue prints of the room, and from them I can suggest the correct placement of the range, refrigerator, shelves and other units, and help the customer decide on an attractive decorative scheme."

### Helps Plan Remodeling

As part of her kitchen planning work, Mrs. Meek frequently goes to the customer's home to help her plan the remodeling. "Orders for considerable merchandise have resulted from this service," she said.

"When we plan extensive changes in her kitchen, involving a large expenditure, we suggest that the patron follow a budget plan and purchase her major electric equipment first, then add the remainder little by little."

The Bureau receives inquiries not only from housewives in the city who want their kitchens modernized, but also from out-of-town clients, Mrs. Meek explained.

"Just today I had a letter from a customer in Saginaw who wanted a kitchen plan, and suggestions on what kind of an electric refrigerator to buy. Although she didn't tell me about the window arrangement in the kitchen, I sketched an outline for her, suggested a color scheme, and sent her literature on our refrigeration lines."

### Three Model Kitchens

As a further aid to people who are interested in kitchen remodeling or obtaining new equipment or accessories, J. L. Hudson's has three attractive model kitchens and a breakfast nook set up at one end of its china and glasswares section.

Entirely different in colors and in equipment arrangement, each kitchen is completely and beautifully fitted and furnished.

"Almost every article displayed in the kitchens can be purchased right on this floor," Mrs. Meek said. "There is a hostess in the kitchens at all times to answer inquiries, and direct the customer to the department where she may make her purchase. Approximately 30,000 persons have gone through the kitchens in one month," she stated.

Working in close cooperation with the refrigeration and electrical appliance department, and in many cases making the contacts that later result in sales, Mrs. Meek is in a good position to observe the different buying and selling trends in merchandising these products.

### Replacement Market

"I believe that the replacement market for electric refrigerators sales is becoming more and more important, because people who purchased six or seven years ago are now finding that their refrigerators are not large enough to take care of their present needs," Mrs. Meek commented. "Of course repeat is partly responsible for that," she added.

"Whenever I talk to refrigerator prospects, and at cooking lectures, I always stress the importance of this factor, and urge my listeners to tell the salesman the number of persons in the family, and the amount of entertaining which they do, so that he can recommend the correct size refrigerator."

Of the selling trend in connection with the planned kitchen idea, she said that in her opinion, the step-saving convenience provided when the kitchen contains a complete set of electrical equipment, which is properly grouped, is an all-important factor to the housewife who is interested in improving her home.

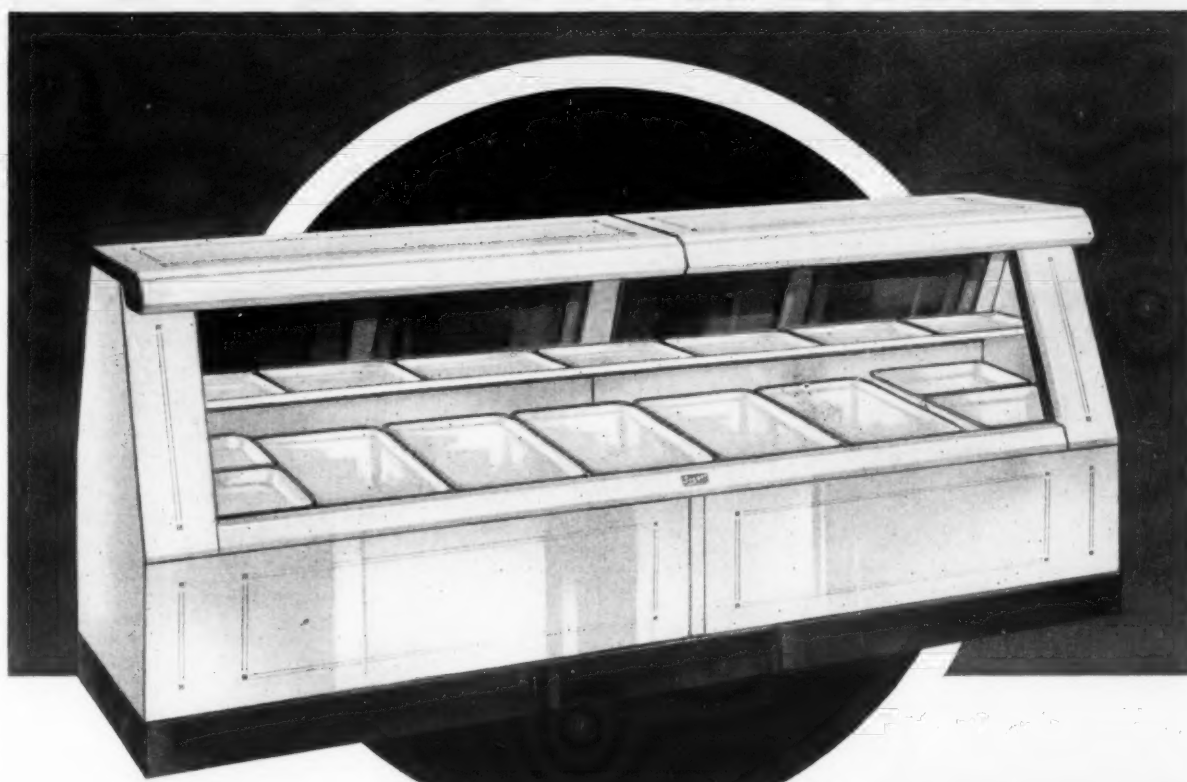
"We show her, by drawing a diagram, the actual number of steps she can save in cooking in a modernized, scientifically arranged kitchen, as compared with those she now has to take because her refrigerator and range, shelves, and work table are too far apart."

### Recipe Service

One other activity of the Home Advisory Service Bureau, that of conducting a recipe service, is also worthy of special attention as a traffic-increasing factor in Hudson's refrigeration department.

"Each day we feature a special recipe, and the week's series compiled would give the housewife a menu for a complete meal," the home service director explained. "We do not mail out any of these special recipes; anyone wishing one must come down to the Bureau to obtain it."

"We have a great number of requests not only for the day's specials, but for all types of recipes, dinner menus, party suggestions, and for ideas on what to serve at church dinners and organization entertainments," she said.



## The New NUMBER TWELVE has Everything

The New Seeger Double-Duty Display Case, Number Twelve, has everything to make it attractive to the average Grocer, and Butcher—as it is just what he needs and can appreciate.

- Number Twelve has Class—  
*It is built to Seeger Standards.*
- Number Twelve has Sales Appeal—  
*Displays food to best possible advantage.*
- Number Twelve has Convenience—  
*Refrigerated Storage right at hand.*
- Number Twelve has Beauty—  
*Seeger Made White Porcelain with light Green design.*
- Number Twelve has Durability—  
*Sturdily built to last.*
- Number Twelve has Every Modern Improvement—  
*Economical in operation and trouble-free.*

Number Twelve has Universal Appeal—A Modest Price—No Extras—Refrigeration Coils and Porcelain Platters are Standard Equipment at No Extra Charge.

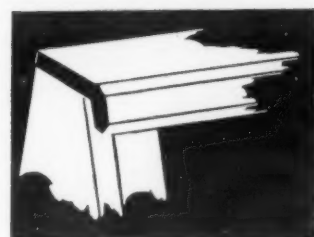
This New Double-Duty Display Case by Seeger offers a real sales and profit opportunity to Dealers and Distributors of Electrical Refrigeration. For S.O.S. Assistance in closing sales—wire Seeger Factory, any Branch or Special Representative.

**SEEGER REFRIGERATOR COMPANY**  
SAINT PAUL, MINNESOTA

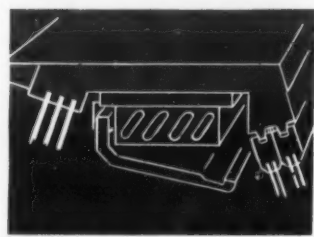
Branches:  
New York Boston Chicago  
Los Angeles San Francisco

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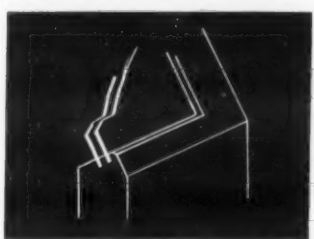
Special Representatives:  
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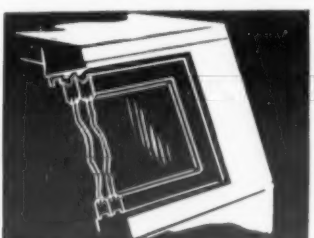
SEEGER NEW STYLE FLUSH TOP LIGHT REFLECTOR



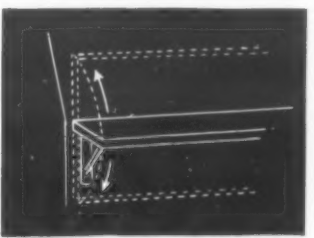
CROSS FINNED TYPE COILS



PATENTED THERMOPANE DOUBLE GLASS



SEEGER LOC-I-TITE MOULDED RUBBER DOORS



NEW FOLDING WORK SHELF



SEEGER-MADE EXTRA HEAVY PORCELAIN PLATTERS



## Godfrey Keeps Rackliffe Sales Force in Shape with Rehearsals; Believes in Showmanship in Sales Training

By T. T. Quinn

NEW BRITAIN, Conn.—Salesmanship, believes George L. Godfrey, sales manager of Rackliffe Bros. Co., Inc., Kelvinator Connecticut distributor, is showmanship — plus a well-trained sales organization from top to bottom, kept at peak form by frequent and rigorous rehearsals.

Mr. Godfrey has had 15 years' experience in merchandising electric refrigerators, most of it with Frigidaire — and has been in the Kelvinator end of selling since 1931. His sense of showmanship is well developed; for, before a war injury forced him to give it up, he was a Broadway song-and-dance man.

Coming into the refrigeration sales field, Mr. Godfrey lost none of his flair for the dramatic—but his tactics have changed in one important particular. What used to be his disappointment—small audiences—is now his desire.

"Salesmanship," he says, "especially the training part of it, is nothing but showmanship. Get your salesmen—a few at a time—into your headquarters, show them some things you want them to remember, in a way they can't easily forget. Then send them back to their dealers to practice what you've taught them."

"And check up on them regularly, to see that they're still doing their jobs right, with the same old enthusiasm. That's just about all there is to it."

But that isn't all—as it will develop later.

Now, however, let's check back on Mr. Godfrey's association with Rack-

liffe's. With Kelvinator since 1931, in a dealer training capacity, he came to New Britain last year to do some work with Rackliffe's dealer organization. The men he trained did such a good job, and were so warm in their praise, that Fred O. Rackliffe, vice president of the company in charge of refrigeration, decided the firm couldn't afford to get along without him. He's been there ever since.

While Mr. Godfrey wasn't on the job a full year, his influence on the sales figure was such that it climbed to 2,500 units before the end of 1935 — a new high mark for Rackliffe. This year the company's shooting at 4,000 units—and the way things have started out, it will make it.

Rackliffe has 105 dealers in the territory it covers—85 of them in small Connecticut and Massachusetts towns, and 20 in the larger cities. The company is strictly wholesale, and refrigeration is its newest line. It is known throughout this territory as distributor for paints, mill supplies, hardware, windows, doors and trim, and agricultural implements.

Back now to Mr. Godfrey and his sales training wizardry.

Essentially a showman, he works best in an atmosphere tinged with the dramatic. When he got his program under way last December, Mr. Godfrey was looking for a place in which to put his showman theories into practice. He finally found a vacant room in the Rackliffe offices and got permission to fix it up to suit himself.

At one end of the room he set up a stage, curtained, and topped by

two slogans: "Big Things Have Happened at Kelvinator," and "Our Year, 1936." Background of the stage he filled with a Kelvinator display; in the foreground is room for three refrigerators.

Around the room he placed copies of advertisements, banners, and other sales helps issued by the factory. Then he was ready to go to work with salesmen—not only his own, but every Kelvinator man in his territory.

And right here is where Mr. Godfrey's brand of sales training takes a new turn. For he not only selects the wholesale field men who are to work under him, but the supervisor of sales—and the salesmen—for every one of his dealers.

"Our sales program for 1936 is based upon five main points," he says.

"First, manpower. This means the selection of proper personnel to do our selling work."

"Second, we want to see that these men have all the equipment necessary to doing a good selling job."

"Third, we give our men a definite plan of operation. There are no ifs or ands about our methods."

"Fourth, going into the retail field, we aim to secure an adequate number of retail supervisors and salesmen for all the dealers in our territory."

"Finally, we direct and train these men—all of them—under definite sales plans."

### Sells Through the Eyes

Best way to drive selling points home to salesmen, Mr. Godfrey believes, is through the eye. In the proper setting, men will go back to their jobs with much more enthusiasm—and selling knowledge—than if they are simply told the sales story, without dramatics. If they can see what you're driving at, and hear it too, they get the selling spirit quicker.

That's the principle back of the special "show-room." But there's another, too—small audiences.

For instance, when the company

## The Background for Sales Training



Saturday morning sales conference at Rackliffe's, where problems are settled and the next week's program planned. Standing is Sales Manager George Godfrey; around the table, to his right, are President F. E. Rackliffe; M. L. Hagle, field man; Fred O. Rackliffe, vice president and secretary; and J. E. Wilkinson, service manager. To Mr. Godfrey's left are W. A. Schroedel, assistant treasurer and credit manager; M. T. Hillery and Leonard Jackson, field men; and R. R. Woram, in charge of orders.

held its introductory showings this spring, Mr. Godfrey wouldn't call the whole field force in at once, for a big affair of two or three days. He called them in, 20 or 30 at a time, for a two-day meeting.

"In a smaller meeting, the men absorb the sales story better, and in less time."

"Sometimes, in a big sales meeting, the men don't pay as close attention as they might, and the timid ones hesitate to ask questions on things they don't understand, for fear of seeming ignorant. A smaller meeting gets away from all this. The men pay attention—there's nothing else for them to do—and the way we try to dramatize our sales points brings the story home to them in a way they can't easily forget. Also, in a smaller crowd, nobody need hold back any questions he wants to ask."

"After the showing, the men go back to their jobs—and we know that they know what they're selling."

"Instead of one big show this spring, we held six or seven—and it worked out just as we thought it would."

Manpower, we have noted, is the backbone of Rackliffe's program. Mr. Godfrey reduces this somewhat ambiguous term to the specific:

"Our program calls for one salesman to every 1,000 of population in our territory; and one supervisor for every six salesmen."

### How He Picks Them

Both supervisors and salesmen are picked, needless to say, by Mr. Godfrey. Here's how:

Sales schools are held every Wednesday and Thursday at the "Institute," as Mr. Godfrey calls his training quarters. All dealers are invited to send their men in; but attendance is limited to 20 men, on the basis of "first served."

When the quota of 20 is reached, additional attendance is barred. The overflow must go back home, and hope they can get in under the wire next week. Strongest endorsement of the school's success is that they do come back—some of them three and four times—before they get in.

The schools begin at 10 o'clock Wednesday morning, and run for 12 hours, with time off only for meals; the Thursday session begins at 9:30 in the morning and winds up about 5 o'clock that afternoon.

Program of every sales meeting is the same. Mr. Godfrey holds the stage at the start, and pours selling ideas at his men in a steady stream. Each of the company's four wholesale men is trained to take a portion of the show in his own hands; and when Mr. Godfrey finishes, one of these men steps in and carries on from where he left off.

How do the men know where to begin and what to say, That's easy. Mr. Godfrey has written continuity for the whole show, from start to finish, and each of the field men memorizes this—so there's no break in the chain of thought, from the meeting's beginning to its close.

In fact, each of their field men is thoroughly trained to give one of the "schools" in the field, if need be—though all dealers are urged to send their men into Rackliffe's headquarters, if possible.

At the close of the Thursday meeting, each salesman attending the school is asked to write Mr. Godfrey a personal letter, telling just what he thinks of it. Judging from the letters received so far, dealers' men are convinced they're decidedly worthwhile.

Limited attendance of the schools gives Mr. Godfrey a chance to meet and talk with every man, find out what he knows and how well he knows it. If there should happen to be a hurry-up call for supervisors, he can spot the best men in a hurry.

Men selected for supervisors receive a special course of training, also of 48 hours' duration. Mr. Godfrey insists that these supervisors hold daily meetings of their sales forces—which number, in most cases, from three to six men.

And, just to make sure the daily meetings will be worthwhile to the salesmen, and not just a lot of idle chatter, Mr. Godfrey has written out a series of short, pungent addresses for supervisors to give. Using these, their program, for the most part, is pre-arranged to cover valuable ground; what's left is taken up in round-table discussions and answering questions.

Salesmen are required to turn in regular reports, which Mr. Godfrey and his field men check up on when they make their calls out in the territory.

### Four Field Men

Four field men handle the dealer territories. These are required to turn in daily reports, showing, in addition to the towns worked that day, the number of units on display, number of salesmen employed, unit sales during the month, amount of time spent with the dealer, and a list of the special activities carried on by the organization. Range and washer sales are also shown.

Made out in duplicate, one copy is kept by the field man, the other goes to Mr. Godfrey, together with the field man's recommendations and remarks concerning each dealership.

From these reports, Mr. Godfrey makes up a visible index, in loose-leaf notebook form, of all the dealerships in the territory. At a glance, the index tells him which are his best, and which his worst, dealerships. He knows which are doing their share of advertising—which are wide awake, and which are asleep.

Tabs tell him which dealerships are dropping behind—and he gives these laggards his personal attention.

From the standpoint of the distributor's organization, planning plays a big part in the scene. Every Saturday morning, Mr. Godfrey conducts a meeting of Rackliffe executives and wholesale men.

If you were to drop in on a typical Saturday, you'd probably find these men grouped around a table in the "Institute," mulling over problems of the past week and planning for the week ahead:

F. E. Rackliffe, president; Fred O. Rackliffe, vice president (in charge of refrigeration) and secretary; J. E. Wilkinson, service manager; William A. Schroedel, assistant treasurer and credit manager; R. R. Woram, in charge of orders; the four field men, and Mr. Godfrey.

The field men tell what they've noticed during the week, as far as dealers are concerned; on matters of general policy, President and Vice President Rackliffe have their say; if it's credit, Schroedel rules.

Whatever department of the business it concerns, the men get together, talk things over, explain their problems to each other, and get a broad viewpoint, representative of the whole organization, on all matters pertaining to refrigeration.

With their problems settled, they're ready to start out Monday morning with a clean slate.

# THE COST OF SERVICE!

IN YEARS GONE BY

80% of all service calls were directly or indirectly caused by mechanical failure of the expansion valve or its inability to control under varying conditions. Excessive service expense was directly responsible for the failure of most refrigeration companies.

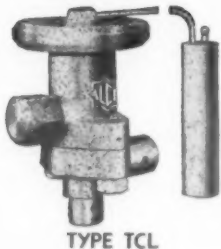
NOW



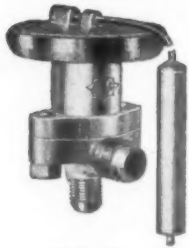
Series "T"

THERMO VALVES

have changed the Service Situation



TYPE TCL



TYPE TL

They are built to "stand the gaff" and are guaranteed to do it.

Progressive refrigeration companies are using Alco Series "T" Thermo Valves and making money.

Alco Series "T" Thermo Valves for Sulphur Dioxide, Methyl Chloride and Freon are startling innovations. No other valves compare in simplicity of design, rugged construction, ease of installation, freedom from trouble, accuracy of control, or choice of sizes to accommodate all capacities required in modern refrigerating systems.

THEY COST FAR LESS IN THE FINAL ANALYSIS

For further details, ask for Bulletin 144D

**ALCO VALVE CO., INC.**

2626 Big Bend Blvd., St. Louis, Mo., U.S.A.

New York

Chicago

Los Angeles

San Francisco

Automatic Refrigeration Control Valves for all Refrigerants and Applications



## '36 'New American Homes' Aimed to Make Builders Conscious of Modern Living Habits

CLEVELAND—With the opening of General Electric's 1936 "New American Homes" all over the country, thousands of visitors are seeing what G-E officials say is a new conception of home design, houses stressing function, rather than structure.

By these demonstration homes, they claim, architects and builders are made more conscious of family living habits and needs in drawing up home plans, incorporating into them those features which make for greatest livability and labor saving.

Last year's program is said by G-E officials to have developed a 10 billion dollar market for construction materials, appliances, home furnishings, and other household equipment.

### Maine Utility Helps Out

In Maine, the first New American Home to be built was recently completed for R. L. White of Waterville. During the building operations, Central Maine Power Co. took over the promotion of the plan, contacting the owner, dealer, builder, architects, and in general acting as a clearing house for any questions.

The power company submitted a suggested lay-out for the kitchen, which was modified to suit the owners. The company's home lighting specialists also drew into the architects' plans their suggestions for correct lighting, even specifying the model numbers of fixtures and lamps for each room. Lamps were chosen by the owner from the utility's display floor.

In keeping with the sponsors' decision to work for a fair number of live prospects rather than the largest number of visitors, invitations in the form of tickets were printed and distributed by the exhibitors. Registering was also eliminated in this way by having the guest write his name on the reverse side of the ticket.

### 800 Visitors During 10 Days

During the ten day demonstration the utility reported 800 guests. The house was open from 2 until 5 p.m. and 7 until 9 p.m. except on Sundays, when it was closed.

Floodlights furnished by the Maine Public Service Co. made the house easily seen from a distance. In order to make the home complete for demonstration, furniture was lent for the duration of the exhibition by a local branch of Atherton's Furniture Co.

Visitors entered through the kitchen where they were greeted by the hostess, their tickets accepted, and a guide introduced. They were then routed through the kitchen to the den, and from there to other parts of the house, returning to the kitchen without interfering with the next party going through.

Definite sales for the furniture company, the lighting fixture company, and Central Maine Power resulted, and all exhibitors received many good prospects, the utility reports.

### Connecticut Home Draws 2,800

Between 1 and 6 p.m. on the opening Sunday, 2,800 persons visited the "New American Home" built by the Knight Realty Co. in Fairfield, Conn.

The \$18,500 house contains seven rooms and includes a complete G-E kitchen, oil furnace, and radial wiring.

All work surfaces in the kitchen are stainless steel, all cabinets of enameled steel. Carrara glass forms the wall surfaces, and asphalt tile the flooring. The window above the dishwasher sink is chromium plated steel casement.

Sponsored by Rex Cole, Inc., G-E distributor, with headquarters in New York City, it was designed by Porkras and Lyons, architects, with Frank T. Hackett as general contractor.

### Three Orders for Homes Result

Three definite orders for homes of the type displayed and 12 good prospects were the results the builder obtained from Sacramento, Calif.'s "New American Home," which drew crowds of 10,000 persons during the demonstration period.

Guides found it almost impossible to keep the all-electric kitchen free of traffic, reports R. S. Zaring, manager of the Sacramento branch of Electric Appliances, Inc., G-E distributor.

In this home, the guests were first taken to the basement to see the heating and air-conditioning equipment, then through the upstairs rooms, and finally to the kitchen so that salesmen were given the opportunity to talk about the appliances.

### Utility Displays Kitchen

Pacific Gas & Electric Co. tied in with the activity, and gave over a large corner window in its storeroom for a display of all appliances in the kitchen ensemble of the exhibited house. The utility also displayed signs inviting the public to visit the house.

Another 10,000 responded to the

active promotion work done by Electric Household Appliances, Inc., G-E distributor in Dallas, on the demonstration home in Stevens Park Estates, Dallas.

The dealer advertised extensively, and then followed up with an invitational advertisement each Sunday during the 30 day inspection period.

The Dallas Morning News supported the demonstration by devoting the entire first page of its second section and several constructive pages to publicity on the new home on each Sunday that the house was open.

### Other Homes Planned

William I. Wilt, advertising and sales promotion manager of Electric Household Appliances, Inc., reports that the distributorship organization believes that the New American Home can be profitably promoted in every town in its territory with a population over 10,000. At present the distributor has another under construction in Wichita Falls, Texas, and negotiations under way with contractors for houses in Tyler, Fort Worth, and Longview.

The Dallas home is equipped with heating and winter air conditioning, summer air conditioning, and a complete G-E kitchen.

Harry Estus Hardware & Plumbing Co. is the dealer who took over the sponsorship of the "New American Home" in Newport, Calif., popular seacoast resort town, with such success that he has never had less than 1,000 person pass through it on Sunday.

### Promoted from Start to Finish

From the ground breaking ceremonies to the public opening, promotion of the project was handled so that the greatest number of prospects for homes and electrical equipment were apprised of the construction of this model electrical home.

Made to sell for \$18,000, this home is completely electrical, with not even a gas pipe on the lot. The builders, Irvin Gordon and Willard B. Mallott, have agreed to defer its sale until the vacation and beach season is over, which means that the demonstration period will amount to five or six months.

Mr. Estus is developing so many prospects he doesn't know what to do with them, reports George C. Silzer, wholesale manager of The George Belsey Co., who has also been working on the program.

## 400 Attend Reader's Meeting in Houston

HOUSTON, Tex.—Reader's Wholesale Distributors of this city was host to approximately 400 persons at a new line showing of Crosley 1936 refrigerators and the 1937 Crosley radio line, held in the Rice hotel ball-room here, May 17.

Following the presentation of the line at a meeting held in the afternoon, those attending were guests of the distributorship at a dinner in which a floor show and dancing were the entertainment features.

Reader's territory covers 32 counties in the Southeastern part of Texas.

## G. E. Walker Joins Crosley Sales Promotion Staff

CINCINNATI — G. Earle Walker, formerly sales promotion manager for Prima Manufacturing Co. with headquarters in Philadelphia, recently joined the sales promotion department of the Crosley Radio Corp.

Mr. Walker was at one time in the merchandising division of the Philadelphia Electric Co.

## Georgia Power Sold 1,950 Units in Drive

ATLANTA—Total sales of 1,955 units, or 163% of the quota of 1,200 were achieved in the Georgia Power Co.'s spring sale of refrigerators, March 23 through April 27.

Rome led the divisions with 183%. R. E. Arnau, Columbus, was leading division senior salesman with 168% of quota. Leading store and district managers were: H. G. Hamilton, West End; A. W. Harris, Macon; C. M. Robertson, Carrollton; and H. L. Johnson, Dublin.

S. D. Chadwick, of Decatur, led all Class "A" salesmen in individual performance, with 425% of quota. Other individual leaders were: W. E. Mumford, Main Store, 207%; P. E. Talley, Macon, 260%; J. B. Warren, Carrollton, 327%; H. D. Everett, Jr., Thomson, 233%; Schley Moore, Wrightsville local manager, 500%.

Final report of the sale by districts was: Rome, 234 sales, or 182.8% of 128 quota; Atlanta, 755 sales or 179.8% of 420 quota; Macon, 312 sales, or 157.6% of 198 quota; Augusta 221 sales, or 153.5% of 144 quota; Columbus, 284 sales, or 152.7% of 186 quota; Athens, 149 sales, or 120.2% of 124 quota.

# SAFETY!

Two Overcome  
By Escaping Fumes  
Pipe of Refrigeration System of Downtown Hotel  
Punctured During Repairs—Others Made Ill

You Can't Guarantee  
SAFETY On Paper if  
SAFETY Isn't in the  
Box!

# Grunow

## PIONEERS IN PROTECTION!

Only Grunow's Engineers Have Perfected A Vacuum Circulating System for the Use of CARRENE, the Super-Safe Refrigerant

32 makes of home electric refrigerators now . . . but still only ONE that features SAFETY!

It's the Grunow. No other make employs the pressureless, hazard-less vacuum circulating system. No other make uses NON-FLAMMABLE, NON-EXPLOSIVE, NON-SUFFOCATING, super-safe CARRENE!

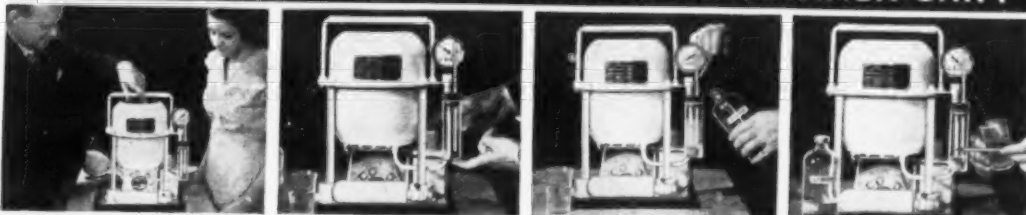
Yet the factor of absolute protection is a PLUS sales-point for Grunow. Because Grunow is priced with the others . . . and it is a leader in economy, capacity, freezing speed, cabinet

styling, and all the convenience features expected of a modern electric refrigerator.

People today are SAFETY-CONSCIOUS! You'll find it EASIER to get their interest . . . and their order . . . when you show them a Grunow! Write at once, or wire collect, for franchise details.

GENERAL HOUSEHOLD UTILITIES COMPANY  
CHICAGO, ILLINOIS—MARION, INDIANA  
Manufacturers of Grunow Super-Safe Carrene Refrigerator  
Grunow Household Radios • Grunow Automobile Radios

## SALESMEN PRAISE AMAZING HOME DEMONSTRATION UNIT!



Here is the only home demonstrating unit for electrical refrigerators in existence today. The prospect sees the temperature drop from 80 above to 40 below zero in sixty seconds, as

CARRENE is exposed to the Grunow vacuum circulating system. You make ice before their eyes! A door opener—easy to handle—most convincing sales tool ever put in your hands.



## ELECTRIC REFRIGERATION NEWS

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VOL. 18, No. 5, SERIAL No. 375  
JUNE 3, 1936

## Lessons Learned From the FHA

TWO months have passed since FHA financing of household electric sales was cut off, and so far we have had no reports of a precipitous slump in sales.

When members of the NEWS editorial staff had an opportunity to interview a number of leading Detroit refrigerator dealers at a recent refrigeration show, they found opinion almost unanimous to the effect that the demise of government-insured loans for refrigerator purchases had affected sales but slightly, if at all.

This finding is significant in view of the fact that FHA financing was probably used as widely in Detroit as in any other city in the country.

It may have been true that government aid to refrigerator purchasing proved a stimulus to sales, and perhaps at a time when such stimulus was needed, but it had come to be such a disturbing element that few regrets have been expressed because of its passing.

One of the reasons why it proved to be unsatisfactory to the industry, and resulted in unfavorable newspaper publicity for the retailing branch of the business, was that the legislation and administrative regulations under which the financing was provided were too hastily conceived, like many other pieces of New Deal "emergency legislation."

When the situation brought about by the misuse of the FHA plan reached its boiling point early this year, with misled and angered purchasers sounding protests, investigation showed that no provision had been made to fix normal business responsibility for the satisfaction of the purchaser.

Once the dealer got a credit statement approved, completed a few other details, and installed the refrigerator, his responsibility was ended. Financial institutions making the loans pointed out that they were merely making the loans under a government guarantee of a certain percentage of defaulted payments. The purchaser had no place to register any type of complaint.

Such a setup encouraged some retailers to use the kind of tactics which tended to make the public look upon vendors of electric refrigerators and other electrical appliances with distrust.

But from the standpoint of the electric refrigeration industry one of the most disturbing parts of the whole program was that salesmen were no longer selling electric

refrigerators, but "easy payment terms." Some salesmen even went to the extreme of using New Deal propaganda as a basis for the argument that FHA financing was one of the means designed to "give the poor working man a break."

Prospects were high-pressured to sign the order and were assured that "if you can't make a payment, don't worry, because you know how the President feels about the working man."

We know of one sales manager for a chain of dealerships who openly declared that he was sending out untrained salesmen armed only with an FHA contract.

Such selling methods were certainly not conducive to building an acceptance in the public mind for electric refrigeration. No doubt these practices resulted in an unfavorable reaction on the part of many prospective buyers who were more interested in the product and its service than in the length of time they could take to pay for it.

It is surprising that FHA financing did not have even more deleterious effects than those which began to show up near the end of its tenure.

There now seems little doubt that the elimination of refrigerator financing from the provisions of the National Housing Act was really a stroke of good fortune for the electric refrigeration industry.

## Letters

### Grunow Agency Defends Scare Copy

Ruthrauff & Ryan, Inc.  
Advertising  
360 N. Michigan Ave., Chicago  
June 1, 1936

F. M. Cockrell, Publisher

We are naturally very much interested in your editorial, "The Fear Appeal in Advertising," which appeared in your issue of May 27.

However, it seemed to us to be a little unfair to Mr. Grunow. When a man has pioneered protection into a unit of household equipment he is clearly within his rights when he speaks of it in advertising.

Especially when that advertising message is based not on theory, but on fact. The record as made by clippings from the news columns of the papers is open to your inspection and flatly contradicts your assumption that the old style multiple systems are the only ones that let go.

The position of Ruthrauff & Ryan is that when one of its clients has an advantage over competitors as obvious as this one, this agency would be neglectful of its duty if it failed to point it out in strong advertising terms.

No stigma has attached itself to Libby Owens Ford for advertising the safety of Safety Glass and pointing out the danger in not using it. Likewise Goodrich Silvertown Tires (a Ruthrauff & Ryan client) has found profit in pointing out the protection from blow-out in the "Golden Ply." No doubt you have seen this advertising.

Dodge Brothers (another Ruthrauff & Ryan client) was the first motor car manufacturer to show by dramatic photographs the protection afforded by the Dodge all-steel body. And the popularity of Dodge cars has shown an insistent climb since the first of these advertisements appeared.

This advertising unquestionably has exerted a strong influence on competitive motor car advertising.

We have not made a survey to determine the value of safety as an advertising appeal. We can see no value in research which can do nothing more than establish the obvious.

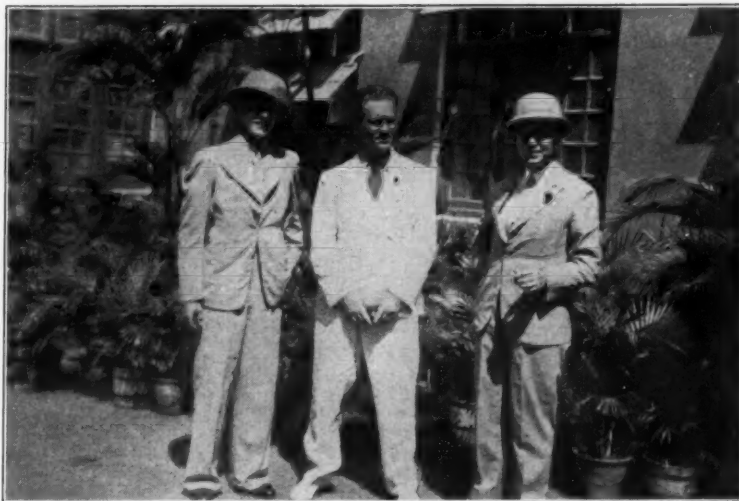
Since your editorial clearly questions the good advertising judgment of this agency, we suggest that in the exercise of a spirit of editorial fairness you publish this letter.

K. A. FREDERICK.

Answer: Theodore Price, the late publisher of *Commerce & Finance* had a hobby of clipping newspaper reports about old men who fell dead on golf courses. He used the collection to "prove" his contention that golf is a frightfully hazardous game which should be abolished by law in the interest of public safety.

Long before the game of proving things by newspaper headlines was invented it was considered a smart

## The Weary Traveler in India



Outside the Royal Yacht Club of Bombay, India. George Taubeneck, editor of the NEWS (center) in the company of Mr. Persson (left), manager of Vulcan Trading Co., Electrolux agents in Bombay, and Mr. Sundgren, Swedish Consul and joint general manager of the Swedish Match Co., Ltd., and Vulcan Trading Co. (George's appearance confirms his report of a distressingly hot trip overland from Calcutta to Bombay.)

trick to select sentences from the Bible to prove whatever one wanted to prove.

Your argument that the results of certain advertising campaigns based upon the safety hazards of automobile traffic prove something or other about the right way to sell household electric refrigerators impresses us as being too far-fetched to be reasonable.

### Public's Worry Over Refrigerants Not Justified

The University of Wisconsin  
College of Mechanics and Engineering  
Madison, Wis.

Editor:

Your editorial, "The Fear Appeal in Advertising," in your May 27 issue is most timely and to the point. You are to be congratulated for writing it.

The number of prospective household refrigerator purchasers who worry unduly about dangerous refrigerants seems to me to be all out of proportion to those who are concerned about other factors which generally are more important or more likely to impair satisfactory service.

ROYCE E. JOHNSON, Director,  
Electrical Standards Laboratory

### Wants Sales Figures for N. Y. C. Area

Railroad Advertising Co., Inc.  
1465 Broadway, New York City  
May 19, 1936.

Dear Sirs:

We are desirous of obtaining a record of sales of domestic refrigerators for the country as a whole and for the New York Metropolitan Area, constituting 25 counties by years and months, if possible, for the past few years and also a record of the number now in use, if such figures are available.

We were referred to you by the Bureau of Home Economics of the U. S. Department of Agriculture.

Do you publish an annual or special edition, which contains any information or data which might be helpful in advertising and merchandising activities of refrigerators? If so will you kindly advise us as to the issue and their cost.

It is difficult for us to explain sufficiently all of the information we would like to obtain on the refrigerator business but we would appreciate getting anything which would assist us along the lines suggested above.

Any courtesy you extend to us will be appreciated.

Answer: You will find all available statistical data regarding the refrigeration industry in the 1935 REFRIGERATION AND AIR CONDITIONING MARKET DATA BOOK.

Additional statistical information obtained since this book was published about a year ago, will be found in the weekly issues of ELECTRIC REFRIGERATION NEWS.

In ordering the MARKET DATA BOOK, we would suggest that you add a dollar or two to your remittance with a request to the subscription department to select back issues of the NEWS (price of regular issues is 10 cents, specifications issues are 25 cents each) which contain additional sales figures for the industry as a whole or surveys of the New York Metropolitan area.

Please note that bound volumes of ELECTRIC REFRIGERATION NEWS, containing all weekly issues for a period of four months, are available at \$3.00 per copy. Thus you may, if you desire, obtain all copies of the NEWS for the past year or more.

You will find these issues of the NEWS the best possible source of information which would be helpful to you in arriving at a general understanding of the refrigeration business.

### Cooperation by Electrolux Agents in Bombay

By Air Mail  
Electrolux  
Far Eastern Organization  
P. B. No. 254  
Bombay  
May 11, 1936.

Publisher:

Herewith enclosed please find Mr. Taubeneck's article on Java which he left in my hand for forwarding to you. He wanted copies of this made which has delayed its despatch somewhat and I am therefore airmailing it via Europe.

My agents here, The Vulcan Trading Co., and myself were very glad to meet Mr. Taubeneck during his short stay in Bombay and I have no doubt that India will furnish the substance for another of his interesting and informative articles in the NEWS.

I have pleasure also in enclosing a snap showing George in good company (barring the photographer) in Bombay which I thought might be of interest to you.

CLIFFORD V. MIDDLETON,  
Manager, Electrolux, Far East.

### Air Conditioning Specifications Incomplete

Carl Reimers Co.  
101 Park Ave., New York, N. Y.

Editor:

I have just read your issue of May 20 including the specifications on air-conditioning apparatus. This is extremely interesting and I would appreciate it if you would send me four extra copies, for which I enclose \$1.00.

I am interested especially in the fact that you have omitted certain manufacturers from your list. This may be due to the fact that they did not send you the necessary information but it would seem that the study would not be complete without American Radiator, Bryant Heater, Carrier Corp., Chrysler, Frick Co., Lewis, Parks Cramer, Savage, Standard Air Conditioning, Timken, and York.

Answer: It is true that specifications of some of the important manufacturers of air-conditioning equipment were not published in the May 20 issue. In some of these cases, however, we can offer an explanation.

As we understand it, there are two divisions of the American Radiator Co. that make air-conditioning equipment: American Blower Corp. and Standard Air Conditioning, Inc. We published American Blower specifications, but those of Standard Air Conditioning were not ready at this time. Other leading firms whose 1936 specifications were not ready, but who signified an intention to furnish the data for a later issue, included Carrier Corp., Airtemp Division of Chrysler, and Corozone.

Specifications of air conditioners manufactured by the Savage Arms Corp. were published under their trade name, Zephyr Air.

### Too Much Secrecy About Gas Units

Good Housekeeping Shop  
Lancaster, Ohio

Editor:

Enclosed check for \$3.00. Please send us ELECTRIC REFRIGERATION NEWS for one year. We would like to have two extra copies of the Household Specifications issue.

We think your paper is a very fine help to salesmen if used in the proper way. It provides them with the knowledge of the product they are selling and an insight on what their competition has to offer.

Our only suggestion is that more information on gas refrigeration be published. There seems to be too

much secrecy connected with this product and no comparison can be made.

C. H. MILLER

### Edison Institute's Estimates Out of Date

Hull Electric Co.  
119 S. Santa Fe Ave.  
Salina, Kans.

Editor:

One of our salesmen just handed us a piece of Electrolux sales literature in which occurs the following quotation from Statistical Bulletin No. 1 of Edison Electric Institute:

"or an annual average of 575 kwh. per refrigerator—at an average rate of 4 cents per kilowatt hour—the total revenue amounts to \$23 per refrigerator."

Then this piece of literature goes on to imply that any salesman of electric refrigeration who quotes a lower operating figure is a first class liar.

Having just averaged a group of meter tests conducted in customers' 5.1 cu. ft. box we sell (Frigidaire), and having found the average monthly bill to be \$1.12, we would like to know:

First—when was this bulletin published and second—the date and conditions of the survey made?

It is our impression that the Edison Electric Institute was discontinued several years ago and we believe their figures are too old to apply today.

We believe that an article giving the true facts to the trade would be greatly appreciated by them.

Answer: The Edison Electric Institute is the national association of electric light and power companies, and is very much alive.

It is true that the figure of the annual average of 575 kwh. per refrigerator is an old one—it was used by the Edison Institute in its estimates prior to 1934.

In 1934 the Institute used 550 kwh. as the average amount of energy used by a refrigerator annually, and in its 1935 estimates of the energy output through electric refrigerators it used 480 kwh. at an average rate of 4 cents.

According to the Institute, there are some utility companies that estimate the average annual output through refrigerators to be as low as 420 kwh. Naturally, the energy consumption varies in accordance with the local outdoor temperatures, amount of usage, etc.

### Needs Seal for a Jewett

1455-17th Ave.  
San Francisco, Calif.

Editor:

Without waiting for the Specifications Book to be published, is it possible to obtain the address of anyone who could furnish a seal for a Jewett compressor? This refrigerator was manufactured in Buffalo about eight years ago.

Answer: For information about a seal for the Jewett refrigerator, we suggest that you get in touch with the Jewett Refrigerator Co., Buffalo, N. Y., which is still active.

### Three Splendid Issues

2244 Ontario Ave.  
Niagara Falls, N. Y.

Editor:

Am in receipt of ELECTRIC REFRIGERATION NEWS—issues of April 22, May 6, and May 20.

They are all splendid issues—a great help and education to your readers. May the good work continue. Many thanks for the offer that placed the above issues at my hands.

H. J. DICKINSON.

### Mrs. Want 'Em Too

Century Electric Company  
Manufacturers of Motors and Fans  
1806 Pine St., Saint Louis, Mo.  
May 15, 1936

Gentlemen:

We would like to have the name of Mr. Fred Powers, head of our Power Refrigeration Division, put on your catalog mailing list. Thank you very much for this service.

OLIVER S. IMES,  
Publicity Department.

Otteneimer Bros., Inc.  
Oreole Refrigerators  
1001 N. Montford Ave., Baltimore, Md.

Gentlemen:

Kindly place my name on your catalog mailing list and oblige.

W. T. HORMES,  
Secretary.

### Magnificent!

Refrigerator Sales & Service  
231 Washington Ave.  
Greenville, Miss.

Editor:

Enclosed please find our check for \$3.00 for which list us as a subscriber to your magnificent paper for a period of one year.

G. W. TURLEY

Please put me on your catalogue mailing list, also send me particulars on ELECTRIC REFRIGERATION NEWS as I would like to subscribe for it.—Albert Witty, 86 Main St., Butler, N. J.



## Air Conditioning

### Henderson Urges Building Owners To Seek Adherence to Standards For 'True' Air Conditioning

(Concluded from Page 1, Column 4)

of the improved health and efficiency of its employees working under manufactured weather conditions.

A survey of merchants disclosed that greatly-increased business volume, decreased merchandise spoilage, and higher net profits followed the use of air conditioning in their stores.

"The complete acceptance of air conditioning by the American public as a commonplace feature of daily life is undeniably grooving buying and living habits of the people to air conditioned environment," said Mr. Henderson, "and is resulting in the remarkable growth of the air-conditioning industry."

#### Establishing Standards

At the same time, the speaker warned, this rapid growth and popular acceptance invited abuses by inexperienced or unscrupulous individuals. To protect the public and the good name of the industry, the Air Conditioning Manufacturers' Association is establishing standards of competence, performance, and business ethics in the air conditioning field and is cooperating with various business, civic, and governmental bodies in eliminating abuse of the public confidence in air conditioning, Mr. Henderson informed the convention.

"Comparatively few of the lay public know what air conditioning actually is," pointed out Mr. Henderson. "Its beneficial effects can be felt and measured in terms of work produced, money saved or earned, or degree of bodily comfort and sensory keenness of enjoyment. As a natural result of a lack of general knowledge of what constitutes air conditioning, 'air conditioning' and 'air conditioned' are much misused terms.

"To illustrate: In appearance there is little difference between a gallon of water and gallon of gasoline or between a pound of fine sugar and a pound of salt, but it is unlikely that a merchant would attempt to sell you one when you had asked for the other. The public knows the difference too well.

#### Air Conditioning Less Tangible

"But air conditioning is definitely less tangible. You are buying or using manufactured atmosphere, a predetermined weather condition—and it takes good equipment, properly assembled by a competent engineer, to fill your order. You generally won't know until you have bought an air conditioning installation, and it is operating, whether or not it fills the order you gave the salesman.

"Therefore, the first and most important point in connection with buying air conditioning is to be sure you are dealing with a reputable supplier of air conditioning equipment. A guarantee is only as good as the integrity of the guarantor and his willingness and ability to make good on his promise.

#### 'Fraudulent Misrepresentation'

"There are more than a few people who would cash in on the popular demand for 'air conditioning' and on the magic of the term 'air conditioning'. Of course, when a manufacturer of shirts, pajamas, underwear, shoes and the like says his products are 'air conditioned', the truth of the matter is so obvious to even the most gullible buyer that there really is no deception.

"But when a manufacturer labels the fan he sells, or the humidifier, or the window ventilator, or the air filter, or other similar single units of equipment as 'air conditioners', the matter ceases to be amusing. It smacks suspiciously of fraudulent misrepresentation, for such single items of equipment will not in themselves give the buyer what he has come to know as 'air conditioning'.

#### What 'Air Conditioning' Is

"An air conditioning installation results from the pooling of many single items of equipment into an assembly by a competent engineer in such a manner as to produce a specified atmospheric result within an enclosed space. That there has been widespread deception, some voluntary, through misuse of the term, 'air conditioning' is, unfortunately, all too common knowledge. The only remedy for this sorry situation and for the protection of the public is the dissemination of as much factual information as possible concerning air conditioning, and dispelling from the

mind of the public all mystery about controlled weather. That is the plain duty of all forward-looking manufacturers and users of air conditioning."

Pointing out that the National Better Business Bureau's job is to protect the buyer from those who would take his money through misrepresentation without giving an approximate value received, Mr. Henderson said that the Bureau viewed with concern the frequent "trimming" of the buyer of air conditioning because of misrepresentation.

#### Better Business Bulletin

After consulting with leading air conditioning authorities, engineers, trade associations, architects, and technical societies, the Bureau published its opinion as to what constituted the "minimum requirements" of air conditioning in a bulletin widely circulated last fall. The Bureau's bulletin stated, in effect:

"That air conditioning is the scientific preparation and simultaneous control of the atmosphere within a structure;

"That Summer Air Conditioning means at least the cooling, dehumidifying and circulating of air; and

"That Winter Air Conditioning means at least the heating, humidifying and circulating of air."

#### Ruling in Humidifier Case

Over a year ago, in the case of the Federal Trade Commission vs. Landon & Warner, the United States Federal Trade Commission stated:

"Landon and Warner agree that in selling a humidifier they will not use in their advertising matter the words 'air conditioner'. The stipulation points out that the respondents' apparatus performs only one of the functions of an air conditioner, namely that of supplying humidity."

In the United States, said Mr. Henderson, air conditioning for industrial purposes, particularly in textile mills and printing plants, has been used fairly commonly for 20 or 25 years. The fundamental bases of modern air conditioning were stated before The American Society of Mechanical Engineers in 1912 by Willis Carrier in his thermodynamic presentation and the discussion of his psychrometric chart.

#### Use in Modern Industry

Today American industry makes wide use of controlled weather. Several hundred diversified industries, running the gamut from heavy steel to cosmetics, rely on air conditioning as an integral part of their manufacturing or assembling process. The beneficial effects of air conditioning on factory employees led to the application of air conditioning for human comfort purposes and brought today's rapid growth and widespread public demand for human comfort air conditioning.

"Thus air conditioning 'arrived', declared Mr. Henderson.

#### Not a New Art

"It is not a new art. It is firmly based on sound fundamentals, tried and tested through many years of practical experience. There will be refinements, of course, just as there have been refinements in the automotive industry's products. The automobile of 1936 is fundamentally the same unit of transportation as the car of 1926.

"The same is true of air conditioning. Air conditioning equipment is built to last for many years, so it is obviously a good investment today. The wise man will not wait for the addition of minor gadgets which may, and undoubtedly will, be developed as the years go on."

#### Cites Facts on Conditioning

Mr. Henderson brought to the attention of the building owners some interesting facts about modern air conditioning.

—There is the completely air conditioned and artificially lighted, windowless office building of the Hershey Chocolate Co. at Hershey, Pennsylvania, a huge stone building, where the occupants know what outside weather conditions are only by referring to a series of colored lights, automatically operated.

—There are Doctors Lagen and Kerr of the University of California, who have been trying for over three years to transmit the common cold to a group of people living in laboratory

air conditioned environment. But try as they will, by injecting cold virus and in every other way, none of the subjects will develop a cold so long as they remain in the air conditioned space.

—There is the experience of the Philadelphia Electric Co., whose employees, working in two air conditioned office buildings, have reduced their illness-lost time record 40% and 56%, respectively, over a two-year air conditioned period.

#### Increased Workers' Efficiency

—There is the experience of the American Tobacco Co. in its Philadelphia plant, where air conditioning not only substantially reduced the labor turnover, but considerably increased the efficiency of the workers. Measured in terms of dollars, the resulting saving was \$29,546 per year. The annual cost of owning and operating the air conditioning system was \$6,174. Thus, from the operation of its air conditioning system, the company received a net profit amounting to \$23,372 in one year.

—Consider the experience of the Morton Building in Chicago, completed in 1927. For six years—from the time the building was put up until 1933—the entire second floor, some 15,000 square feet, was vacant because of its proximity to noisy elevated and street car tracks. The building agent air conditioned this floor and installed sound-excluding devices. Almost immediately this formerly undesirable space, vacant for six years, was profitably leased for an extended period.

The market for air conditioning is virtually untouched, the speaker declared.

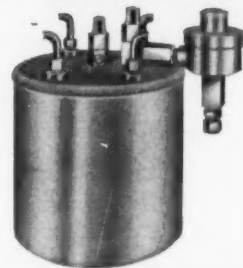
"Prospective buyers," he said, "include the large majority of America's more than 25 million dwellings, her factories, theaters, stores, hotels, public buildings, and railroad trains.

"A survey made recently by the

(Concluded on Page 16, Column 1)

## TEMPRITE Beer Cooling Business Is Breaking All Records

We knew that our beer cooling business would show a big increase in volume at this season of the year, but did not anticipate the tremendous demand for Temprites which is pouring in upon us daily.



This record breaking demand is logical, however, and bears out our previously advertised statement that Temprite Instantaneous Cooler, by reason of its outstanding performance, would be the choice of the majority of Licensees who intended to purchase beer cooling equipment during the current season.

Again we urge you to get into this rich market. You cannot miss getting the lion's share of the business

in your territory if you act at once and present the outstanding performance of Temprite and its exclusive advantages.



**TEMPRITE PRODUCTS CORPORATION**  
1349 EAST MILWAUKEE AVE. - DETROIT, MICHIGAN  
ORIGINATORS OF INSTANTANEOUS LIQUID COOLING DEVICES

## WHY G-E MOTORS HELP YOU SELL REFRIGERATORS



In a recent impartial survey, electric-appliance dealers and department stores were asked:

"Do you believe that it would be more difficult to sell appliances equipped with a little-known make of motor?"

"Yes," said 74 per cent.

"No," said 26 per cent.

"What makes—or brands—of electric motors, in your opinion, would make it easier for you to sell appliances?"

"General Electric," said 84 per cent.

TODAY, Mrs. America is purchasing high-quality merchandise. She is judging the quality of a refrigerator not only by the reputation of the refrigerator as a unit but also by the reputation of its various parts. A well-known name on the motor gives the refrigerator you sell additional acceptance and makes selling that much easier.

G-E motors are well and widely known because General Electric has been making dependable motors for electric refrigerators as long as motors have been used for that purpose. The G-E monogram means high quality to buyers everywhere. That's why G-E motors WILL HELP YOU SELL—why they will lessen sales resistance and lower your cost of selling.

Can you afford not to avail yourself of this added sales appeal?

General Electric, Dept. 6A-201, Schenectady, N. Y.

**GENERAL ELECTRIC**

070-133



## User Survey Shows Mechanical Cooling Preferred for Most Comfort Installations

### Installation cost per square foot

Cleveland firm of Beaumont and Hohman represents the results of an intensive canvass of several thousand business men, both prospects for and present users of air conditioning, in eleven leading cities in the country. This survey developed that:

"13% of the thousands interviewed had air conditioning; 87% did not.

"Of the users of summer air conditioning, 67% cooled with mechanical refrigeration; 13% used ice; and the rest used cold water, washed air, or other types of cooling.

"Of the users of summer air conditioning, 78% said that air conditioning had increased their business volume; 6% said it had not; and the remaining 16% did not know, most of these latter having installed air conditioning when starting up in business.

### Increase Net Profit of 67%

"Increased volume resulting from the use of air conditioning brought an increase in net profit margin to 67% of those interviewed; 27% did not know whether or not it had increased business volume; and 6% said it had not.

"Leading reasons given for increased net profit were: 'greater customer buying due to air conditioning', 'increased personnel efficiency in air conditioned environment', and 'less merchandise spoilage'.

"Did these thousands of merchants feel air conditioning had been a profitable investment for them? 86% said 'yes', 9% 'didn't know', and 6% said 'no'.

### Type of Cooling Used

"Of those who did not have air conditioning but were considering it, the following gave as their choice of type of cooling:

Mechanical refrigeration . . . 60%  
Cold water . . . 5%  
Ice . . . 5%  
Washed air . . . 3.5%  
Blower . . . 3.2%  
Uncertain . . . 23.3%

"And of this group, 65% had demonstrated their seriousness of consideration by having already obtained cost estimates from suppliers of air conditioning equipment."

Sixty-one utility companies in various parts of the country reported 2689 air conditioning installations made in 1935, requiring a total of 78,463 horse power, said Mr. Henderson. Commercial office buildings were among the leaders, as shown by the following partial summary:

	1935 Installations	H. P.
Commercial office buildings	381 or 14%	14,488 or 18%
Residences	459 or 17%	1,014 or 1%
Department and retail stores	508 or 19%	20,110 or 26%
Theaters	169 or 6%	11,029 or 14%
Restaurants	374 or 14%	7,975 or 10%

A survey made as a result of a questionnaire prepared and distributed to the members of the Building Owners and Managers Convention Association by the executive secretary, Robert B. Beach, replies on air conditioning operating data from buildings located

in 14 States and the District of Columbia, geographically representing every section of the country from coast to coast and border to border, Mr. Henderson stated.

### Buildings of All Sizes

The survey covered buildings of all sizes—from the Chrysler building in New York City and Tribune Tower in Chicago, to the owner-occupied three-story building of the Gulf States Utilities Co. in Beaumont, Texas. It included buildings completely air conditioned and some partially air conditioned. It included installations which had been operating since 1928 and some which had had experience only since the summer of last year.

This survey showed first, as to costs and types of equipment, commercial office building operators commented on air conditioning as follows:

### Installation cost per square foot

Excluding the extreme low of 8 cents and the extreme high of \$4.35, the average was \$1.43 per square foot. Because of differences in accounting methods, it cannot be said that this is even an approximately

result. Bear in mind, also, the variable that no two installations, even in the same town and across the street from each other, are alike. accurate figure, but it is submitted as Annual operating cost per square foot. These reported costs ranged from

2 cents to 47 cents, with an average of 15 cents per square foot. The comments above concerning installation cost apply to operating cost as well. In addition, remember the variance of power costs, water costs, seasonal weather conditions, and other factors in different parts of the country.

### Using central station installations or units?

76% used central station installations.  
15% central station and units combination.  
3% used units only.  
6% did not say.

### Types of Installations

#### Which type of installation preferred?

47% preferred central station.  
6% preferred units.  
35% said it would depend where and how used.  
12% made no comment as to preference.

#### Why the preference?

44% said they preferred central station type because of operating efficiency.  
9% said they preferred units because of operating flexibility or personal experience.  
47% did not comment.

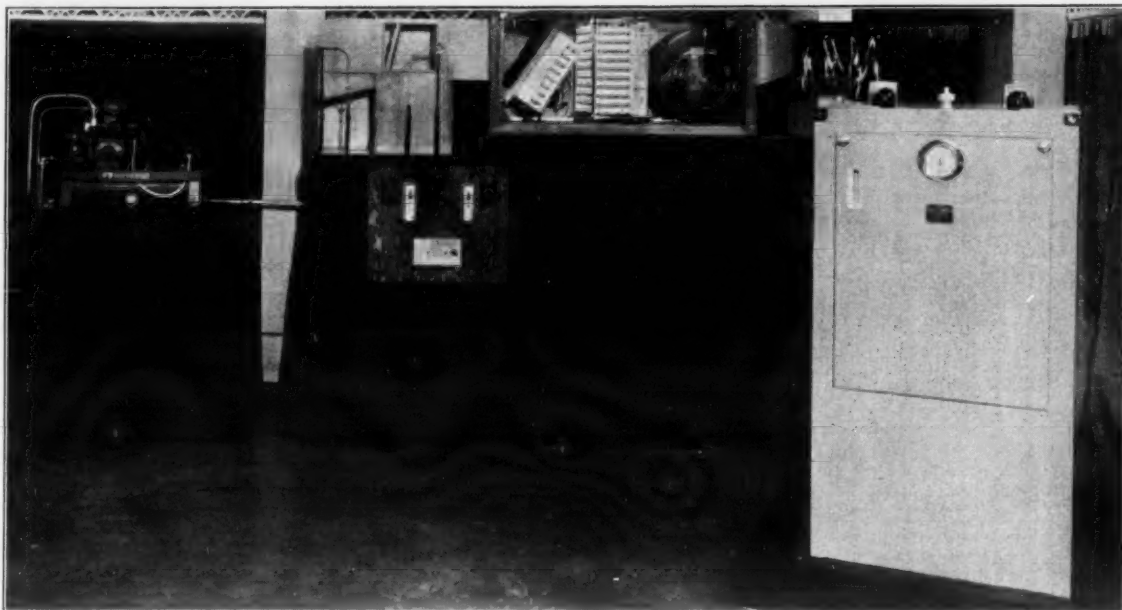
As to results, the survey showed the following:

### Effect on Occupancy

#### Did air conditioning increase occupancy?

32% said "yes," ranging from "slightly" to "33%."  
12% said "no."  
12% could not determine.  
21% were owner-occupied.  
23% did not comment.

## Kelvinator 'Package Air Conditioning' for Low-Cost Homes



Pictured above is the demonstration unit (with all component parts of actual size) of the air-conditioning system which Kelvinator Corp. designed and installed for a number of standardized 7-room homes which were constructed in Detroit. (See story starting on page 1 and carrying over to page 18.) At the far left is the 1/2-ton Freon condensing unit for summer cooling and dehumidification purposes. Next is the Kelvinator "comfort damper" for night operation, through which arrangement 100% outdoor air is blown through the house and exhausted to the outside. Below the "comfort damper" is the various control apparatus consisting of the thermostat, humidistat, and "exact selection" control panel. Immediately to the right of the "comfort damper" is the conditioning chamber, with the filter and cooling coil (inclined), steam heating coil, cascade type humidifier, and blower fan. The large piece of equipment on the extreme right-hand side of the picture is the boiler-burner unit, which furnishes steam for heating purposes, and hot water.

less spoiled merchandise and greater business volume.

11% said air conditioning was good advertising.

18% did not comment.

"Quickly summarizing the record, it is apparent from this survey that the office building industry generally is finding air conditioning of decided advantage," stated Mr. Henderson.

### Improves Competitive Position

"Undoubtedly, it improves a building's competitive position. Not only are old tenants retained but new ones are attracted. Isn't this comment by a building operator in Omaha logical and what must be expected?"

"I now get the highest type of tenants and have had no delinquent rent or electricity accounts for the past 16 months."

"Probably the stock objection of building managers to air conditioning is 'cost.' But what is cost when, as each new building is erected offering the tenant the lure of air conditioning (and most new buildings are being so provided) and as each of your present progressive competitors adds air conditioning to his building, you hit the skids toward receivership?"

"Look ahead five, six, seven, or ten years. Where will your building be? Face the facts. The trend is obvious and the conclusion inescapable. The survey of your own industry bears that out."

"But if further proof is necessary, let's take another look at the Beaumont and Hohman survey mentioned earlier."

"Of the several thousand business men interviewed who did not have air conditioning, 50% were considering buying it, 49% were not, and the rest were undecided. Of those considering air conditioning, 70% said they needed it 'to hold customers'; 17% said it was necessary 'to increase business'; 33% said they had 'to be on par with the competitor who has air conditioning.' There is the unmistakable trend."

## Installations of 20 Systems Are Being Made in Baltimore

BALTIMORE—More than 20 new air-conditioning systems are being installed in Baltimore at the present time, with every major air-conditioning distributor here having a part of the business involved.

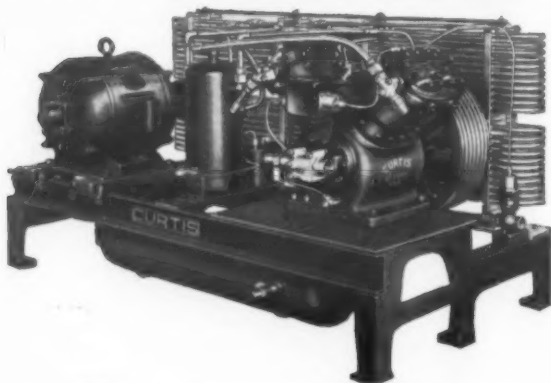
Among the installations now under way are: Anderson & Ireland, a hardware establishment; Westheimer & Co., financial concern; offices of Crown Cork & Seal Co., national manufacturers of bottling machinery; executive offices of Rustless Iron & Steel Corp.; offices of Emerson Drug Co., Bromo-Seltzer manufacturer.

Plate making department of Alco Gravure, Inc.; Waverly Theater; Hi-Ho Inn; Regal Shop, men's and women's wear store; main local store of F. W. Woolworth & Co.; Enzel of Paris, Inc., shoe shop; Schellhase's Restaurant; Sranwick's, Inc., women's specialty shop.

A & G Clothiers; Bridge Theater; dining room and bar of Belvedere hotel; Leed's men's store; S & N Katz, jewelry store; special process work department of the Maryland Biscuit Co.; Leon Levi, jewelry store.

Beauty parlor of Stewart & Co., department store; bar of Abbey hotel; men's clothing department of Moses Kahn of Old Town; basement and first floor of Julius Gutman & Co., department store; Virginia Dare Stores; William Tickner & Sons, funeral directors; branch of Read Drug & Chemical Co., chain drug store operators.

## ONLY CURTIS CAN GIVE YOU



- The Most Complete Line (65 sizes)
- Timken Tapered Roller Bearings (long life)
- "V" Type Radial Design (short sturdy crankshaft)
- Patented "Centro-Ring" Oiling (Positive Pressure Type)
- Water Cooled Cylinders and Cylinder Head (Highest efficiency)

These features insure highest efficiency, low operating cost and long life.

There is a correct CURTIS Unit for every Commercial, Industrial or Air-Conditioning installation.

Sizes 1/6 H. P. to 30 Tons

CURTIS REFRIGERATING MACHINE CO.  
Division of Curtis Manufacturing Company  
1912 Kienlen Avenue, Saint Louis, U. S. A.

In Canada  
CANADIAN CURTIS REFRIGERATION CO., LTD  
20 George Street, Hamilton, Ontario, Canada



## QUIET AS A PUMA



In this, consumers concur: For small unit V-drives, there's no better belt than a Gilmer V-Belt. It's sturdy. It's slipless. And most important — it is QUIET! Not a sound from it in operation. So stock up on this belt. Made in standard sizes to fit all refrigerators, air-conditioning equipment, oil burners, beer pumps, water pumps, washing machines and woodworking tools. Comes sleeved and marked for quick identification.

L. H. GILMER COMPANY, Tacony, Philadelphia

MAKERS OF THE WORLD'S BEST-KNOWN V-BELTS



## Comfort Cooling in Milady's Boudoir



This is not an actual installation, but merely one of several demonstration sets by means of which the Commonwealth Edison Co. of Chicago, at its shops in the Loop district, showed the public how room-type conditioners would appear when placed in the home or a business office.

## Restaurants Lead Air Conditioning Market In Detroit, Carrier Distributor Reports; Theater Being Cooled

DETROIT — In comfort cooling, restaurants still take the lead in number of installations in progress in Detroit, largely because among the small concerns now able to afford air conditioning, restaurants show the most immediate profit from it, declared H. C. LeVine, president of Atmospheric Control Co., distributor for Carrier Engineering Corp. in this territory.

Theaters and auditoriums also account for a lot of equipment, and in the industrial process field, dairies and other food concerns are finding air conditioning and new refrigeration increasingly essential, he said.

### Funeral Homes 'Interested'

The field in which there are the most "interested but not sold" customers seems to be the funeral parlors, in Mr. LeVine's opinion. The company is constantly approached by undertakers who haven't quite made up their minds to install air-conditioning equipment, he stated.

At this time, however, with almost every one of its contracts calling for installation by June 1, the company is hard put to keep up with itself, according to Mr. LeVine.

Cass Theater, the only legitimate theater in Detroit, is one of the jobs they are working hardest on now.

### Duct Problem in Theater

Because the Cass is an old and not very large theater, the duct problem is one of the most troublesome in the installation. In several cases where the use of inside ducts would necessitate using seating space that could ill-afford to be lost, the duct work has had to be placed outside. Most of the outside ducts, Mr. LeVine explained, are either on the roof or along the outside walls. This outside system presents another problem in that the ducts have to be not only insulated against heat, but weather-proofed as well.

A 50-hp. refrigerating machine is being placed on the roof of the theater; and to effect a saving in tonnage, the roof is being sprayed with condenser water. A variable speed fan to change the air quantities will be used.

### Candy Factory Installation

Atmospheric Control also recently installed 25 tons of air conditioning in the Fanny Farmer Candy factory located in Highland Park. The system, which is installed only for industrial purposes and not for comfort cooling, keeps the inside temperature at 62° regardless of outside temperature.

Carrier refrigeration equipment was also installed in several chocolate enrobing machines there so that the candy, after being dipped in the hot chocolate is carried through a 50-ft. tunnel on a canvas belt, and comes out of the tunnel with the chocolate hard and fit to be handled.

An 18-ton, 20-hp. air-conditioning unit has recently been installed in the delicatessen and restaurant owned by William Boesky at Dexter and Collingwood here. This unit, Mr. LeVine says, has four cylinders, but a two-step thermostat in the room automatically cuts out two of the cylinders when the load in the restaurant drops.

De Wan's candy store and lunch room in the David Whitney Bldg. is another to install Carrier equipment recently. Mr. LeVine says that this store used two of the new Carrier ceiling suspension units, 39-J Weather Maker. This unit, with walnut grain casing that fits easily into any decorative scheme, comes from the factory complete with all of the controls mounted and connected in the unit.

This equipment has double fans with positive pressure type and universal adjustable louvers to insure good distribution. Each of the two units has a capacity up to 5 tons.

Another unit of this type has already been sold by the distributorship to Leib Bros., 15318 Livernois, a Men's Wear Shop.

### Ice Cream Hardening Plant

Since August of 1935 when Atmospheric installed the first ice cream hardening plant in this part of the country at W. A. Gables Dairy, the distributorship has had several other installations of similar type. Mr. LeVine stated. Cold diffusers have been put in the Crow Dairy, 16th and Linden Sts., and two of the largest units have recently been installed in the Dexter Ave. plant of Shedd Products Co.

These units maintain temperatures from 20° to 26° below zero, and have shortened the ice cream hardening time from the 24 hours taken by the old pipe method of hardening to a maximum of eight hours with the modern Carrier, Mr. LeVine said.

In addition, several other advantages have been noted by the dairies installing these systems, Mr. LeVine says. Room capacity is increased because the hardening process is accomplished in so short a time, initial cost is also less, and the quality of the ice cream is improved, he claims.

For all of these installations, the company has its own engineering staff, which lays out and designs the jobs and supervises the installations. Mr. LeVine is himself an engineer, and H. G. Nutting, head engineer for the firm, has had 25 years of engineering experience. Although Atmospheric Control has been a Carrier distributor only since 1934, Mr. LeVine has been in business since 1918.

The installation crew is also thoroughly trained in air conditioning, having been put through their lessons right at the Carrier factory, Mr. LeVine reports. He regards the factory training method as essential for consistently good work in so highly specialized a field.

## Du Pont Is Sales Manager For W. H. Hermes Co.

SAN DIEGO, Calif.—Paul A. Du Pont, formerly supervisor for Frigidaire here and for the past five years a member of its BTU (leading salesmen) club, was recently appointed sales manager of the W. H. Hermes Co., Electrolux distributor.

The distributorship is establishing dealerships in all cities of San Diego county.

## Comfort and Health Zones Often Vary Because of 'Air Conditioning' Action of Skin, Doctor Says

CHICAGO — Air-conditioning engineers, in establishing the factors that make up the so-called "comfort zone," have not taken into sufficient consideration the complexity of the human skin's own air-conditioning functions, says Dr. Lloyd Arnold, professor of bacteriology and public health of the College of Medicine, University of Illinois.

As a result, there are many days in which the comfort zone is not the health zone, Dr. Arnold holds.

On cool summer days, the two are practically identical—but when outside temperature is in the upper nineties and inside temperatures in the lower seventies, conditions are not so good, he says. It is common for persons to complain of catching head colds in a 70° F. room on a hot day; and many people feel dizzy, or even collapse, when they come out of such a room into a 90° F. outside temperature.

Why is this? Because the change is too sudden, Dr. Arnold contends. In nature there are no such sudden temperature changes, except in the rare instances of a severe barometric drop. Between winter and summer are the slowly heating spring months; between summer and winter the slowly cooling fall months.

In a single day, the temperature change is not often more than 30° F., and a 5° rise or drop in one hour is

unusual. Artificial cooling, however, asks us to make a 20-30° F. change in the time it takes to step from one room into another.

It is not so bad in winter, when our bodies are insulated by warm clothes, to step from a 70° F. room into 20° F. below zero, because only the face and nose are exposed. The nose has a special arrangement of capillaries by which the blood instantly leaves it upon exposure to cold, returning with a rush after a few minutes to bring the nose temperature up to or above fever heat. Within 10 minutes in a normally healthy person, Dr. Arnold says, it has dropped back to normal, and the body has adjusted itself to the cold.

The entire skin surface of the human body has a "radiator function" peculiar to it alone, Dr. Arnold says. Other animals depend upon their fur for insulation, or hibernate in a warm place; but man has been given a unique arrangement of skin blood vessels, by which the blood can sift from the inner organs to the outside skin, and vice versa, in a second.

When outside air is cold, the blood leaves the skin to conserve body heat; when the air is warm, it comes to the surface to give off body heat. The sweat glands are another of nature's cooling mechanisms for the body. We have millions of these glands, scattered all over our bodies; animals

have them only on the tips of their noses and the skin between their toes—dogs and other animals that pant have them also on their tongues.

Going into a room of 70° F. temperature from an outside temperature in the nineties, what happens? We are, of course, hot—and our sweat glands are busy helping the body throw off heat; our clothes are thin, and damp. When we enter the room, our sweat glands stop working, go deeper into the body to conserve heat. Our feeling is one of grateful comfort.

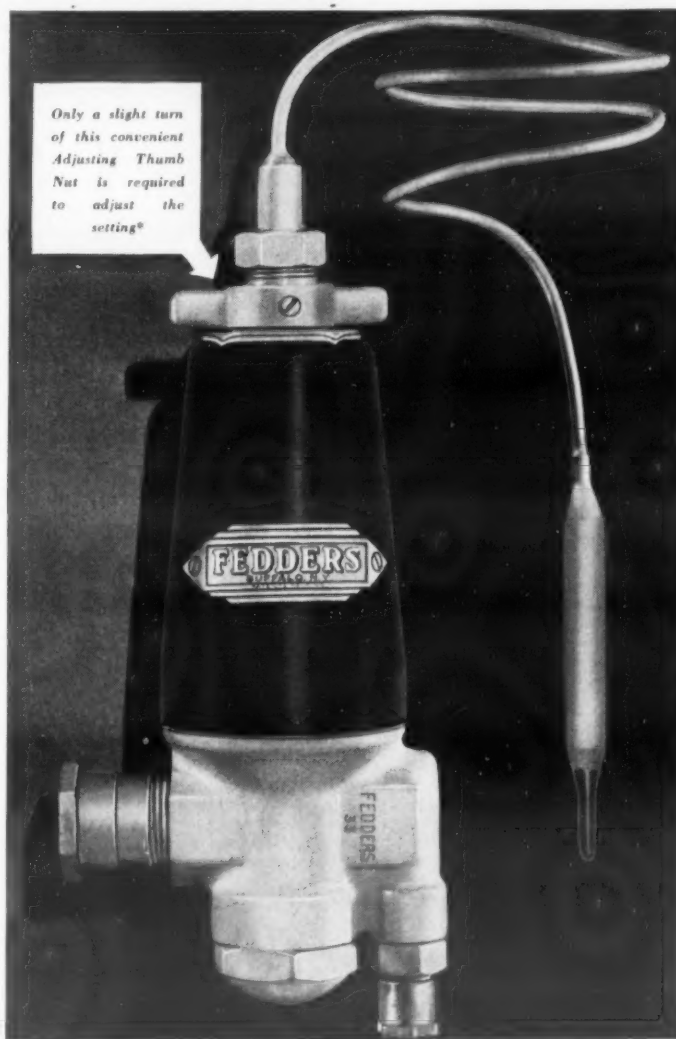
After 10 minutes, however, conditions change, and if we have a coat we put it on, Dr. Arnold says. If we are in good condition, we don't catch a cold; if not, we often do.

Then we leave, and hit the hot outside air again. Our sweat glands are suddenly called on for work again, deserting the lung tissue and digestive organs. It takes a good body to stand up under sudden changes like these, Dr. Arnold contends.

Although air conditioning is regarded as a helpful instrument in maintaining health, Dr. Arnold believes that, before further work in conditioning air for the sick is undertaken, research should determine what constitutes proper air conditioning for normal, healthy persons under all weather variations.

Difference between inside and outside temperatures, Dr. Arnold believes, should not be more than 10° F., possibly less, and relative humidity between 40 and 50%. The idea, he says, should be to give shade temperature, with comfortable humidity and air velocity.

With a slightly lowered temperature, and other factors controlled, the body should be able to adjust itself without harmful strain, he concludes.



\*Fedders Model 33 Thermostatic Valves are adjusted at the factory for average superheat requirements, but the convenient adjustment makes it easy to obtain the most accurate setting for highest efficiency of the low side.

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## Sensitive Adjustment

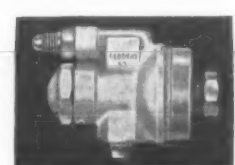
The quick response to the sensitive adjustment of Fedders Model 33 Thermostatic Expansion Valves is just one indication of their

## Accurate Control of Refrigerant

The Fedders Model 33 Thermostatic Expansion Valve is a control unit THAT CONTROLS! The high-vapor-charged power element responds to all temperature ranges encountered in refrigeration practice.

Positive control plus easy, sensitive adjustment assures and maintains correctly balanced conditions modulated in accordance with load variations.

Thousands of Fedders Valves have proved their dependability by meeting the tests of time and service throughout the world.



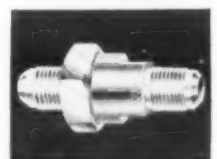
Fedders Automatic Expansion Valve



Fedders Two-Temperature Snap Action Valve



Fedders Constant Pressure Valve



Fedders Check Valve

Patented and Patents Pending



## 'Package Air-Conditioning' Used In \$6,000 Homes Constructed Under Kelvinator's Direction

(Concluded from Page 1, Column 1)

This has been expressed by President George Mason of the company, who recently told a group of utility men that "the butcher and baker will enjoy the benefits of air conditioning before the banker and the broker."

### Reasons for Belief

Basis of this argument is that it is both expensive and difficult to install complete air conditioning for a \$25,000 home of some years standing (although, of course, many installations of this type will be made), and that building of new homes of the \$25,000 class will not form much of a market. However, there are indications of a forthcoming boom in moderate priced residences, and in this Kelvinator officials envisage the real air-conditioning market.

Kelvinator put its experiment in house building in Detroit on a business-like basis. A contractor built the houses for Kelvinator according to a specified plan, but no special prices were given on labor and materials. Thus a true picture of the cost was obtained.

### Cost Between \$5,000 and \$5,500

Cost of the houses averaged between \$5,000 and \$5,500 (including the air-conditioning equipment and kitchen unit of refrigerator, range, and sink). With the builder's profit added this meant a sales price of around \$6,000. The top-price house—without lot or garage—sells for \$6,230.

Another thing which Kelvinator was determined to find out was whether such houses could be sold through the ordinary channels. Accordingly, upon completion they were turned over to a Detroit real estate agency which was given instructions to try to rent them without resort to any spectacular promotion or advertising. At last reports the homes were rapidly being occupied and it is expected that they will all be filled within the near future.

### Standard Floor Plan Used

Although the houses have a standardized floor plan (which kept the cost down) they don't all look alike (see pictures on this page). This has been accomplished through providing variations in the exterior, by using different roof lines, and by either rotating the floor plan 90°, or "flipping it over."

Each house has six rooms (dining room, living room, kitchen, and three bedrooms) and bath. Standard kitchen equipment supplied includes a Kelvinator 6-cu. ft. refrigerator in the "S" series, a 4-burner selective-temperature range, and a sink and worktable.

### 'Package' Air-Conditioning Unit

The "Kelvinator Package" air conditioning for such homes includes a boiler-burner unit to furnish heat, a compressor and cooling coil for cooling purposes, a comfort damper system for night cooling, cascade type humidifier to provide proper humidities in the winter, and a blower fan and duct system for the proper distribution of the conditioned air, and a filter for cleaning the air.

On first inspection, it might seem

that the air conditioner provided is somewhat undersized for the house it is to condition (see pictures on page 16). However, the writer made a tour of inspection through one of the dwellings while the system was in operation and found that the system was performing its functions properly.

While specifications of the equipment used in the air-conditioning system are not available, we found through observation of the equipment that a ½-ton Kelvinator Freon condensing unit is used for cooling purposes. Feature of this machine, we were told, is that it is always pumped down and ready for use, thereby requiring no service to put it into operation at the beginning of the hot season.

### Insulation Used for House

The house has been insulated with 3½ in. of rock wool in the walls, 4 in. in the roof; awnings are provided, and other measures are taken to keep the heat load at a minimum. It is claimed that the cooling system will provide a differential of from 8 to 10° F. from the outside temperature.

"Night cooling" by pumping outside night air through the house and exhausting it to the outside is provided through a special damper arrangement developed by Kelvinator. This night cooling is based upon studies which show that there is generally a drop in temperature after nightfall, and that there is a time-lag of considerable duration before a change in the outdoor temperature is transmitted indoors, unless the outside air is brought in and blown through the house in considerable volume.

### Automatic Dampers

Through a set of automatically operated dampers, the Kelvinator air-conditioning system can be made to operate so that the return air lines are shut-off from the conditioner, and 100% outside air is sent through the distributing ducts and brought back by the return air ducts to be exhausted to the outside.

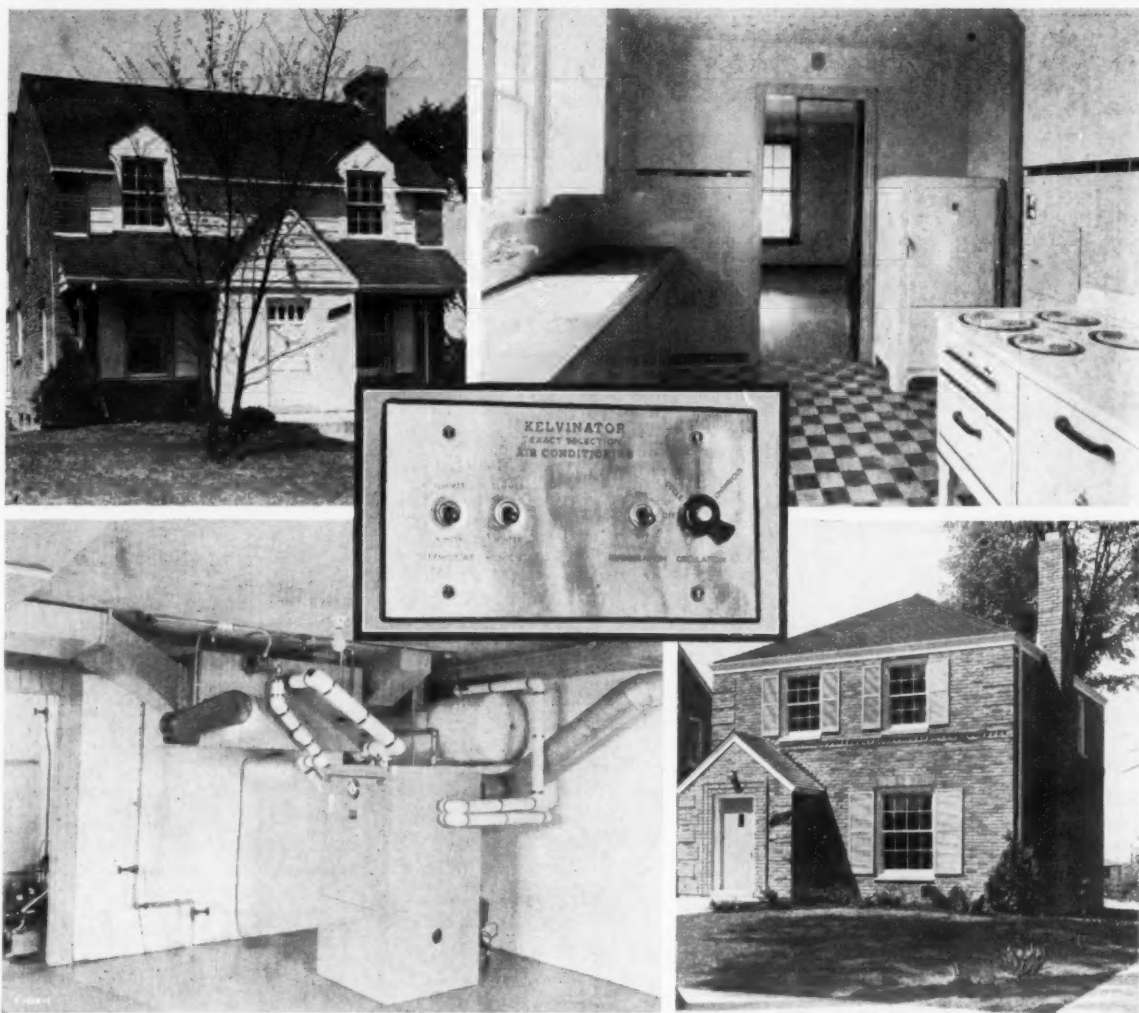
Homeowners control the operation of the air-conditioning system by means of an "exact selection" control panel conveniently located in the kitchen. This panel has a thermostat switch, a humidistat switch, a compressor switch, and a four-point rotary switch.

### Thermostat Switch

The thermostat switch may be set in either winter or summer position connecting the thermostat into the automatic heating or automatic cooling equipment. The humidistat switch puts the humidistat into operation.

The rotary switch provides for: (1) a completely "off" position for the circulating system; (2) a cycling position, so that the circulating system is operated in accordance with the thermostat; (3) a comfort damper position, which automatically closes a damper, making it possible to bring air from the outside, filter, circulate, and discharge it without recirculation; (4) a position for continuous operation of the blower to keep the air in the home in constant movement whenever desired.

## 'Kelvin' Homes and Some of the Standard Equipment



In the upper-left and lower-right hand corners are pictured two of the completely air-conditioned homes in the \$6,000 price class built in Detroit under the direction of Kelvinator Corp. Both houses have the same standard floor plan, but these pictures show how the exterior appearance may be varied. In the lower left-hand corner is shown the air-conditioning equipment in the basement. The boiler burner unit is in the right foreground, and the enclosed conditioner above and behind it. At the extreme left may be seen part of the refrigerating compressor. Upper right affords a view of the kitchen, taken from the breakfast nook. The appliances pictured are standard equipment, and are included in the cost. In the center is shown the homeowner's control panel for the air-conditioning system. The rotary switch at the right provides for different phases of operation in the circulation system. Next to it is the compressor switch. At the left-hand side of the panel are switches by which the user can set the thermostat and humidistat for summer or winter operation.

Hot water is provided by the boiler-burner unit. In the summer a thermostat setting provides hot water for bath and other purposes without bringing the boiler temperature up to the steam point.

### Air Distribution System

Air is distributed to the rooms by means of branch ducts which lead off from a main riser. Grilled outlets in the walls of each room are above the breathing line.

There are return registers in all but the kitchen and bathroom. These are located in the wall a few inches above the floor.

Kelvinator officials point to such features as a natural fireplace in the living room, vestibule with coat closet, toilet and laundry room in the basement, wood and alternate Stran-Steel framing, tiled walls in both bathroom and kitchen, special composition-covered drainboard in the kitchen, as proof that there was no "skimping" in the construction of the houses despite their low price.

## 2 Self-Contained Type Air-Cooled Conditioners Are Built by Kelvinator

DETROIT—Two new self-contained room coolers employing air-cooled condensing units, for applications where water connections are impractical, have been added to Kelvinator's line of air-conditioning equipment.

The smaller model employs a ½-hp. condensing unit, the larger of the two has a 1-hp. compressor.

Heat taken from the room is dissipated to the outside through a window connection.

The new self-contained units cool, dehumidify, filter, and circulate the air. They can be equipped with heating coils if desired, thus eliminating the need for a radiator.

A single switch control, making possible high or low-speed fan operation, is provided.

The furniture steel cabinet is finished in dark-grained walnut.

## Pickup in Air Conditioning Sales Reported During May in Birmingham

BIRMINGHAM, Ala.—A pickup in activity in air-conditioning installation and sales work was made evident here during the month of May, reports Leo V. Fried, secretary-manager of the Birmingham Air Conditioning Bureau.

Installations were completed in the Five Points Theater, first neighborhood movie house to be cooled; in the Parisian department store; in the J. Blach & Sons men's wear store; and in Silver's five-and-ten cent store.

Contracts have been awarded for the air conditioning of one floor of the Tutwiler hotel, for the dining room of the Molton hotel, and for the Empire Steak House.

## Hollenden Hotel in Cleveland Conditions Dining & Bar Rooms

CLEVELAND — Hollenden Hotel's famed old crystal dining room recently gave way to modern architecture and comfort with the substitution in its place of the Beaux Arts Section consisting of the Parisian Bar, Cocktail Lounge, and the main dining room. Decoration, lighting effects, and air conditioning all make the new section modern.

In addition to this section, the year 'round air conditioning equipment also supplies the main bar, the grill room, and the coffee shop, all located on the opposite side of the hotel.

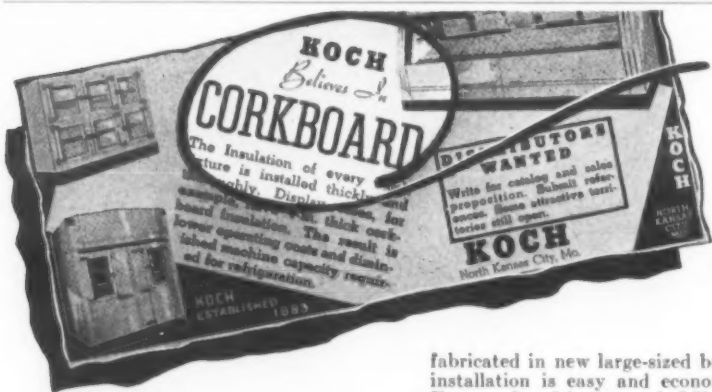
Rearrangement of existing equipment and careful planning of new was necessary in this installation in order to facilitate easy access to the air conditioning equipment in a basement and mechanical room crowded from years of additions and changes, according to the engineers.

The cooling equipment consists of three General Electric 20-hp. units adapted to furnishing air conditioning when and where required, since all the rooms are not fully occupied simultaneously.

Included in the system, G-E officials say, is a means of independently and quickly removing the entire air content of the Beaux Arts Section should such need arise.

Architects for the job were Periera and Periera, Chicago, and general contractors, Albert M. Higley Co., Cleveland.

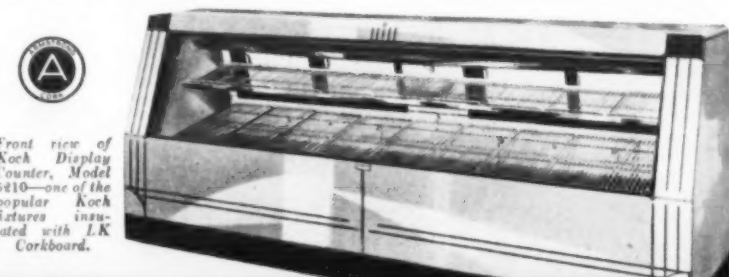
The air-conditioning system for the hotel was installed by Cleveland Air Engineering Co., under the engineering supervision of Electrical Housekeeping, Inc., Cleveland, General Electric distributor.



...because it offers  
**IMPORTANT SALES ADVANTAGES!**

### For Refrigeration Contractors

You can secure speedy delivery of Armstrong's Cork Insulation and Sundries. Armstrong's Sundries bring you the result of 30 years' experience in the most efficient methods of installing cork insulation. Branch warehouses are located in principal cities for your convenience. Write for catalog.

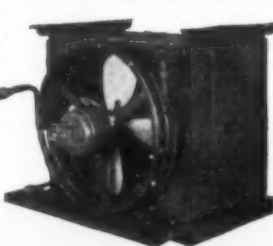


**Armstrong's LK CORKBOARD INSULATION**

## 27 UNIT COOLERS by KRAMER

FOR ANY APPLICATION  
**PRICED FROM \$60 to \$322**  
Hourly capacities vary from 5 lbs. I.M.E. to 200 lbs. I.M.E. Air range (C.F.M.) 125 to 1550. SEND FOR CATALOG No. 336

**TRENTON AUTO RADIATOR WORKS**  
210 West 65th, N.Y.C. TRENTON, N. J. 5114 Liberty Ave., Pittsburgh, Pa.





## Newspaper Syndicate Editor Tells Sales Executives That Foundation of Present 'Good Times' Is Built on Sand

By T. T. Quinn

ST. LOUIS — Although business conditions today are considered generally good, the structure has been built on sand, Richard H. Waldo, president and editor of McClure Newspaper Syndicate, told the first annual convention of the newly organized National Federation of Sales Executives here last week in Hotel Statler.

Sales executives from all parts of the country are here for the convention, which was originally proposed by the Sales Management Bureau of the St. Louis Chamber of Commerce.

### Forecasts Old Age Protection

"The four ensuing years, completing the 10-year cycle of this depression, will change many sales conditions," Mr. Waldo said. "The child labor law will be passed, perhaps strengthened to a higher age than 18. Old-age security will be provided, probably for an age lower than 65. The Communist label on the six-hour day is likely to be washed off."

"Sales managers who combine personality, industry, and conscientious self-education will require all their assets to meet the shifting tides. Cooperatives will change utterly many of the tested formulas, and perhaps offer entirely new opportunities for salesmen now unsuspecting."

Indicative of the trend of family marketing, Mr. Waldo pointed out that 4% of the expense of families earning less than \$1,500 annually now goes on automobiles, and 2% on beauty. In the group earning more than \$1,500 annually, he added, 8.5%

is spent on automobiles and 1.5% on beauty.

"Don't hitch your wagon to a star," he admonished. "Hitch it to a gas chariot, or to women's war paint."

### Changes in Sales Responsibility

The vast growth of complexities and interrelationships in our industrial and business system has brought about a new and fundamental social and public responsibility on the part of business that did not exist before the depression, said Chester H. McCall, special assistant to the secretary of United States Chamber of Commerce, another speaker at the convention.

"The sales executive of today must not only sell the products which his company manufactures or distributes—he must also sell the general management policies and procedures of his company."

Each individual company must do its own selling job, instead of relying upon two or three large business associations to do the work, Mr. McCall said.

### New Relationship with Government

"Another equation that has entered the picture of business management is that of a new relationship with government—a closer relationship, too. There is probably no phase in which the business man has been so inept as that of government relations," Mr. McCall added.

"There are two phases of government relations with which the business man must be currently concerned.

One is the direct contacts and dealings of his company with the government. The other is that of interpreting to the public the company's relationship in these contacts, and in interpreting the company's attitude on major economic and social issues which come under either the legislative or executive purview of the government.

"Because of inexperience, and in many cases neglect, this task for business is not an easy one," Mr. McCall concluded.

### Customers Interested in Themselves

"Customers are primarily interested in themselves and their problems," said Sidney Carter, manager of the Merchants' Service Bureau of Rice-Stix Dry Goods Co., St. Louis.

"In a business sense, customers are loyal to us only so long as we mean a definite advantage to them. It does not disturb them one bit to reflect that we need their business, and cannot show a profit unless they buy from us. We can win their favor only by offering substantial inducements."

"We can easily get on the customer's wire by interesting ourselves in his welfare, his advancement, his profit, and his business health. If we are willing to go out of our way to advance our private interests, then we are in a fair way to having his preferred consideration."

"Human nature is always present, and must be reckoned with. Remembering that customers are always selfish, but essentially fair, go to extra lengths to be of genuine service. Good will is a priceless asset in any business."

"Customers developing gratitude for helpful service say it with business," Mr. Carter declared.

### Marketing Group Head Talks

Frank R. Coutant of New York City, president of the American Marketing Society, told the sales execu-

tives that "lower prices for many manufactured products will bring them within the reach of more people, who would gladly buy them if they could; result in the employment of more workers in manufacture, and thereby increase our national purchasing power."

Science in marketing has been sadly neglected, in comparison with the use of science in production, Mr. Coutant said.

"Only about two or three million dollars are being spent each year, and only about 500 people employed, for marketing research. This is only a drop in the bucket, compared with production research."

"It does show, however, that we are on our way to greater efficiency—and better profits in marketing."

Second day of the convention, Memorial Day, covered additional problems of sales management. Presiding officer of this session was J. C. Aspley, editor of *Sales Management* and author of a series of Dartnell Corp.'s inspirational pocket volumes on sales and sales technique.

## Liftop Rental Plan Successful; Utility Orders 225 More

KANSAS CITY—Results of the Kansas City Power & Light Corp.'s experiment with a plan to increase service consumption of minimum bill customers through offering G-E Liftop refrigerators on a rental basis, proved so successful during 1935 that the utility recently placed an order for 225 more Liftops with W. L. Rasmussen, wholesale representative of the General Electric Supply Corp., who first presented the plan to the utility executives.

Rasmussen worked out the plan

after he made survey of the market for electric refrigerator sales in this territory, and found that a number of customers on the power company's lines who were using ice-refrigeration spent so small an amount on it that salesmen found scant success in trying to sell them electric boxes, according to R. I. Seymour, sales promotion manager of the G-E Supply Corp.

Believing that these customers would want electric refrigeration if it were obtainable on a rental basis, and that the plan would eventually lead to future sales, Rasmussen suggested a merchandising program to the utility, and received an order for 100 boxes which were rented out in the company's Carrollton, Mo. district, of which Clyde Porter is manager.

The new shipment of Liftops recently ordered will be placed in the power company's Carrollton, Overland Park, and Ottawa, Mo., districts.

## Electric Range Sales Are Classified by Incomes

CLEVELAND—Of the total electric range sales made during 1935 in the territory by the Western Massachusetts Companies, those to purchasers in the three upper income brackets represent 46.7% of the entire total—an increase over the percentage for this group during 1934, which was 32.3%, according to the analysis which Charles P. Golding, general sales manager, reported to G-E headquarters here recently.

The following tabulation shows the percentages for individual income groups as divided under Mr. Golding's analysis of 1934 and 1935 sales totals:

	1934	1935
Well-to-do	8.3%	9.3%
Professional	4.3%	9.3%
Supervisory	20.2%	28.1%
Salaried	18.9%	28.5%
Wage Earners	48.3%	24.7%

# Two Major Markets

for manufacturers of

**PARTS, MATERIALS, SUPPLIES AND TOOLS**

*This Summer*

Are you making REPLACEMENT PARTS?

Jobbers, service departments, and servicemen are SUMMER BUYERS. Hot weather means more work, and MORE PROFITS, for these groups—and for the manufacturers who supply their needs.

Several thousand servicemen are on the job this summer—about two hundred jobbers of parts and supplies, as compared with one hundred a year ago—eight million household units and over one million commercial machines now in use—it's a BIG market.

The News will feature information of special interest to these groups in the June 17 issue, right at the beginning of their peak season. It's a great opportunity for you to tell them about the advantages of your product.

Replacement Parts & Service Methods

JUNE 17

*Next Year*

Do you want a good share of the ORIGINAL EQUIPMENT orders for 1937 models.

Manufacturing executives and engineers will soon be deciding on features of their new designs. Win their attention NOW, and point out the merits of the component parts which you can furnish.

The July 1 issue of the News will be written with their particular interests in mind. Emphasis will be centered on ENGINEERING, DESIGN and PRODUCTION. Two major conventions of the previous week—those of the American Society of Refrigerating Engineers and the American Society of Heating and Ventilating Engineers—will be reported.

We invite your advertisement in this special issue, telling why your product should be specified as original equipment in the 1937 models.

Engineering, Design & Production

JULY 1

## ELECTRIC REFRIGERATION NEWS

5229 Cass Avenue, Detroit, Michigan



## Letters from Service Men

### Mr. Parker of Greensboro Agrees With Mr. Parks of Asheboro

Asheboro Hardware Co., Inc.  
Asheboro, N. C.  
May 21, 1936.  
Enclosed please find our check for renewal of our subscription to ELECTRIC REFRIGERATION NEWS which expires on the 15th. This date is past but I hope that we will not miss any issues due to our delay in sending in our renewal. We are making the check for \$8.00 as we wish to take advantage of your offer of three books.

The writer was in Greensboro yesterday talking to Mr. Parker of the Home Appliance Service Co. and we had a mutual regard for ELECTRIC REFRIGERATION NEWS.

We would like our name to be placed on your list to receive service catalogs.—J. RUSSELL PARKS.

### Helps Solve Many Problems

Natchez Radio Co.  
Expert Repairs on All Makes of Radios  
404 Franklin St., Natchez, Miss.  
May 25, 1936.

Gentlemen:

I am a subscriber to the NEWS, I also have a copy of the MASTER SERVICE MANUAL, and I find them great help in my work. They help me solve many of our problems.

Please put my name on your catalogue mailing list. CLAYTON NIX.

### Every Page Worth Reading

I enclose money order for 25 cents, covering my application for one copy of your issue containing specifications of household refrigerators.

For several months I have purchased the NEWS and must say that every page is worth while reading. The MASTER SERVICE MANUAL has been very helpful to me also.

I believe I have asked you to place my name on your Catalogue Mailing List for service men.—Wm. H. Hewlett, 487 Milton St., Nanaimo, B. C., Canada.

### Refrigeration Library Subscriber

Refrigeration Service Engineering  
23 Madison Ave., Red Bank, N. J.  
April 25, 1936.

Please excuse the delay in remitting for the enclosed order as you are aware that this is a very busy period and there are many things to be done, but wish to thank you for still mailing and continuing my subscription to the NEWS.

You will find enclosed herewith check for \$9.00 to cover the cost of the publications listed below: ELECTRIC REFRIGERATION NEWS one year No. 21,471, MASTER SERVICE MANUAL, REFRIGERATION AND AIR CONDITIONING SPECIFICATIONS, REFRIGERATION ENGINEERS MANUAL, REFRIGERATION AND AIR CONDITIONING DIRECTORY.

Would also ask that you change the above heading on your records to Refrigeration Engineering Service.

If it is not too late please place my name on your mailing list.

Thanking you for past favors and courtesies. THEO. B. GETZLER.

### It Should Be a Good Town

Clyde Dunn  
Automobile and Refrigeration Service  
Electra, Texas

Dear Sirs:

I would like to be placed on your Mailing List for refrigeration catalogs. CLYDE DUNN.

### Nine Years in the Business

T. G. McParland  
Nine Years in The Refrigeration Business  
Refrigerators of All Makes Serviced  
5836 Verdun Ave., Verdun, Que., Can.  
April 20, 1936.

Gentlemen:

Will you please put my name on your catalog mailing list? Thank you. T. G. McPARLAND.

### Look Forward to the News

Bray Electric  
Radio-Refrigeration  
Colby, Kansas  
April 17, 1936.

Gentlemen:

We would like to be placed on your mailing list for manufacturer's refrigeration supplies catalogs.

We look forward every week to receiving the NEWS, which we could not do without.—HOWARD BRAY.

Enclosed you will find 10¢ for a copy of the Aug. 16, 1933, NEWS. Also please place my name on your catalogue mailing list. Thanking you in advance.—Leo Maikin, 814 St. Clair Ave., E. St. Louis, Ill.

### A New Business Venture

May 27, 1936.

Gentlemen:

I am starting out on the venture of building up an independent service shop in electric refrigeration. As I am new to the field, the sources of supplies for the various needs that may arise, are practically unknown to me. I will deeply appreciate your efforts if you will add my name on your catalog mailing list.

Why not spotlight the refrigeration schools and help us fellows who stayed up late nights preparing for electric refrigeration work. This information would help the industry in quickly locating efficient and capable men, as well as helping the men who earnestly endeavored to get somewhere in this field, by hard work and constant studying of the subject electric refrigeration. Accept my thanks for your favor. Your paper is indispensable to me.—William Weidhass, 31 Cherry St., Easthampton, Mass.

### Looking for a Location

I am a subscriber to your NEWS and would appreciate you including my name on the Catalogue Mailing Service List.

I am a trained refrigeration service man and have had experience in the field. I am very desirous of establishing myself either in the Domestic or Commercial line around the metropolitan area.—Joseph A. Stollar, Refrigeration Technician, 145 Lake Ave., Clifton, N. J.

### Has Completed RACI Course

I have just completed my training at the Refrigeration and Air Conditioning Institute of Chicago, Ill. Will you please put my name on your Catalogue Mailing List as an independent service man.

I am a subscriber for the ELECTRIC REFRIGERATION NEWS and I am waiting anxiously for my copy of REFRIGERATION SPECIFICATIONS to be sent as soon as it is off the press.—Wilbur C. Schieber, 10107 Olivet Ave., Cleveland, Ohio.

### Water Cooler Specialist

I am enclosing check for \$3.00 for one MASTER SERVICE MANUAL. I am a subscriber of your valuable paper and wouldn't be without it. I am a service man on 150 water coolers and do all service for one firm and service all makes.

I would like to get on your catalog mailing list.—W. A. Turner, 1115 Government St., Baton Rouge, La.

### Buy News at Harry Alter Co.

Enclosed find 25¢ coin for which will you please send me a copy of Household Specification Issue of April 22. I am not a subscriber of the NEWS, but get the NEWS pretty regular from the H. Alter Co. but missed the issue of April 22. Will you also please put me on your list of catalogue and trade literature and oblige.—Jos. Hand-schigel, Joe's Electric Shop, 904 N. Crawford Ave., Chicago, Ill.

### Most Complete Manual

I am enclosing a money order for one (\$1.00) dollar for which please send me four copies of the "Household Specifications Issue" of ELECTRIC REFRIGERATION NEWS.

I have been a reader of the ELECTRIC REFRIGERATION NEWS for the past month and I think it is the only trade paper of its kind. A friend of mine just received your latest MASTER SERVICE MANUAL which he had me look through and I assure you it is the most complete manual I have ever seen.

You may look forward in the near future for my subscription to the ELECTRIC REFRIGERATION NEWS and for one of the MASTER SERVICE MANUAL'S.

I am a student of the Utilities Engineering Institute, 404 N. Wells St., Chicago, Ill., and also a graduate of the Coyne Electrical School, Chicago, Ill.—Harold E. Bryan, Apt. 309, Edgecomb Hotel, 934 Edgecomb Pl., Chicago, Ill.

### A Buyer in Budapest

I have sent you remittance amounting to \$12 by the News-Subscription-Bureau Kunststadter, with the request to send me your periodical for this year, beginning with the No. 1, 1936, and the volumes 1 to 5 of the Refrigeration Library.

At the same time I beg you to kindly add my name to your Catalog Mailing List.—L. Reichard, V. Falk Miksa U. 12, Budapest, Hungary.

### A Welcome Weekly Visitor

The enclosed draft for \$1.00 will extend my subscription, as per notation enclosed, from April 28 to Aug. 28, 1936. Inasmuch as I am not sure of remaining here more than a few more months at the most, I am going to wait until I am permanently located, and then subscribe for a full year.

I am surely much pleased to be on your mailing list—and ELECTRIC REFRIGERATION NEWS is a most welcome weekly visitor—and I derive much pleasure from reading its most interesting columns.—Morten L. Moe, 908 1/2 Park Ave., Bremerton, Wash.

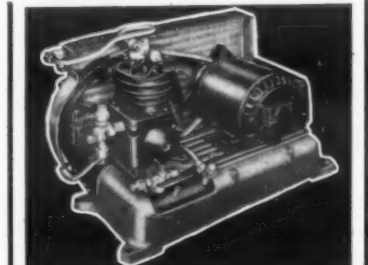
Enclosed find money order for \$3.00, for which please renew my subscription for ELECTRIC REFRIGERATION NEWS. I would also appreciate being put on the catalog mailing list.—G. M. Schuff, 507 Phillips St., Marietta, Ohio.

Kindly change my present address, 980 Laki St., to this new address, 1646 Colburn St.

Also enter my name on your catalogue mailing list. Thank you.—Toyo Kawahigashi, 1646 Colburn St., Honolulu, Hawaii.

Enclosed you will find money to the amount of \$5.25 for the ELECTRIC REFRIGERATION NEWS, the MASTER SERVICE MANUAL, and one extra copy of the Specifications Issue. Also list me for the Catalog Mailing Service. Engineer Student of R. A. C. Institute, Chicago.—C. A. Swingler, 1872 E. 89th St., Cleveland, Ohio.

Please include my name on the mailing list for catalogs, etc. I am a subscriber of your magazine and a service man.—Harold A. Aronson, 41-18 Benham St., Elmhurst, L. I., N. Y.



**RUGGED • RELIABLE**  
10 year record of successful use. Inquiries are invited from manufacturers and assemblers. Sizes 1/2 to 1 1/2. Catalog on request.

**MERCHANT & EVANS CO.**  
PHILADELPHIA

Jeff Walker  
Electrical and Refrigeration Service  
Phone Shop 190, Residence 526  
Jennings, Louisiana

Dear Sir:

Please put me on your mailing catalog list for parts catalog etc. I am a new subscriber, but I have been reading your ELECTRIC REFRIGERATION NEWS for several years.

I have been in the refrigeration service work for nine years, and the last one and a half year have been an independent service man. I find your service talks are hard to beat. I remain, JEFF WALKER

The Refrigeration Store  
Refrigerating Equipment and Supplies  
Wholesale Only  
1319 Jay St., Sacramento, Calif.  
March 23, 1936.

Gentlemen:

We would very much appreciate your placing us on your mailing list for catalogs. R. L. HINSHAW

(Note written on an invoice stub):  
Inclosed find \$3.00 for renewal of my subscription. By all means send it along as I have been a subscriber for years and wouldn't know what to do without your wonderful paper.—Mr. Milton Schwanberg, 3261 North Eighth St., Milwaukee, Wis.

Please put my name on your catalog mailing list. Thanking you in advance.—George McCabe, Serviceman, 263 Hamilton Ave., Trenton, N. J.

Please enter my name on the "Catalog mailing list," and trade literature. I am subscriber to ELECTRIC REFRIGERATION NEWS. Thank you. Leopold Richard, 208 3rd Avenue, Quebec, P. Q., Canada.

Please send me information as to rates of ELECTRIC REFRIGERATION NEWS. I would also like a copy of the Annual Household Refrigeration Specifications Issue.

Please put me on your catalog mailing list as I am going to subscribe to the NEWS.—Thomas F. Muenzen, 165 Crosby Place, New Rochelle, N. Y.

I am enclosing money order for three dollars to pay for the MASTER SERVICE MANUAL. As I intend to go in service and installation business, I will appreciate it, to register me on the mailing list for catalogs, etc.

Kindly send this order for the MASTER SERVICE MANUAL to Joe Aigner 556 W. 140th St., New York, N. Y.

Please accept my thanks for your cooperation. JOE AIGNER

### Harry Alter Co. to Open Cleveland Branch

CLEVELAND—Harry Alter Co., distributor of refrigerator replacement parts and supplies, will open a branch office at 4506 Prospect Ave. here on or about June 6, it was announced last week by Harry Alter, president of the company.

Opening of the new branch here will bring the Alter string of offices to four. The company is now operating stores in New York City and St. Louis, in addition to its main headquarters in Chicago, from which three branch offices are operated in various parts of the city.

Cleveland quarters of the company will occupy a space 40 by 100 feet, on the ground floor of a modern building. Manager of the office will be K. P. Wall, well known in refrigeration service circles in and around the city.

INFORMAL TALK NUMBER 52

## They're Sitting Up Nights Getting Ready To Work For You!

Our job primarily, is training men. But in the final analysis, our greatest service is to the industry which employs the men we train.

As the one school which enjoys the endorsement and confidence of more than thirty leading manufacturers, many of whom have appointed their own engineers to work with us and actually supervise our training, we are best able to give you the type of men you want.

R-A-C-I Trained men are selected for personal fitness . . . given 600 hours of preparatory training in their homes . . . 100 hours of intensive, practical training in our own Shops. They are trained as you want them trained.

Write for details. No obligation.

The REFRIGERATION & AIR CONDITIONING INSTITUTE

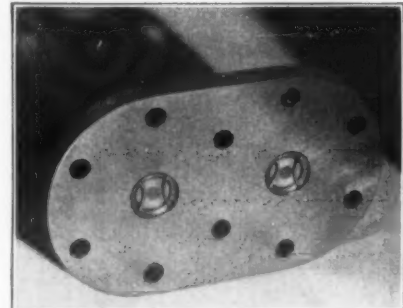
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# PERFECTION

## Certified Parts for REFRIGERATION SERVICE



All Perfection Parts are certified to excel.

Today, the symbol of Perfection is universally recognized as assurance of skilled engineering, the use of best suited materials, precision workmanship and efficient service.

Leading jobbers of refrigeration parts and supplies stock this complete line, and are prepared to make immediate deliveries.

Men servicing refrigerators appreciate the value and convenience of being able to buy Perfection Products through the jobber, and they know from experience that these parts are easy to install, will fit properly, operate quietly, and give long dependable service.

### PARTS for COMPRESSORS

This complete line includes compressor parts for Frigidaire, Kelvinator, Copeland, Servel, Universal, Zerozone and others. These replacements include Valve Plate Assemblies, Bellows Seals, Connecting Rods, Pistons, Piston Pins, Piston Rings, Eccentric Shafts, Eccentrics, Shaft Seal Faces, etc.

### VALVES and FITTINGS

The same high standards of engineering, manufacturing, testing and packaging are reflected throughout the unusually complete line of Perfection Refrigeration Valves and Fittings.

Valve Bodies are made of forged brass having grain structure that prevents seepage of refrigerant . . . Stems are corrosion-proof . . . Recognizing the importance of leak-proof joints, threads and seats are as near perfect as possible . . . Fittings are uniform in diameter, threads are accurately cut, and are carefully protected by cardboard sleeves when packed in cartons.

Complete catalogs can be obtained from your Perfection jobber.

**PERFECTION REFRIGERATION PARTS CO.**  
(A division of the Perfection Gear Company. Established 1919)  
HARVEY, ILLINOIS



## Service Men Seek Help on Problems with Oils, Absorption Systems, Refrigerants And Sealed Compressor Units

### Use of Pyroil & Castor Oil in Refrigeration System

Chatelaine Tower Apartments  
215 East Chestnut St., Chicago  
Editor:

As manager of the above building and secretary of a corporation managing some 400 apartment buildings and hotels in Chicago and suburbs, I should like your expert opinion on two points:

1. Would Pyroil mixed with the oil in a large Peerless central refrigerating unit improve the operation of the condenser, and how would the Pyroil affect the expanding and condensing of the ammonia if it leaked by the rings and they became mixed? Pyroil contains graphite in suspension, you know.

2. How would Castor Oil perform if used as the lubricant instead of oil of ordinary kind in a large 5-ton machine of the above description using ammonia as the cooling substance?

I realize that we are not refrigerator dealers or service men; but, we buy a lot of both—machines and service—and I find the service men have had no experience of any kind on either of these points covered in my questions, so I appeal to you for your expert opinion or report of actual tests made with each or both of these products for lubrication and reducing the mixing of the lubricants with the ammonia.

THOMAS J. MORRIS, Manager.

Answer: See below.

Expert Refrigeration and Electric Works

600 South Western Ave., Chicago, Ill.  
Editor:

As a constant reader of the ELECTRIC REFRIGERATION NEWS we would like to have your advice as to the use of Castor oil as a lubricant in connection with either ammonia, methyl chloride, and sulphur dioxide.

We incidentally have tried adding castor oil to refrigeration oil in operating a methyl chloride machine. This particular machine is now operating more than a year and has proved itself to be very satisfactory.

We also had a few owners of refrigeration plants ask us as to what effect would ammonia, sulphur dioxide, or methyl chloride have on this new lubrication process called Pyroil in refrigeration. THEO. BOYD, Eng.

Answer: A technical expert for a leading refrigerant manufacturer says:

"We would not recommend the use of castor oil as a lubricant for methyl chloride equipment. Castor oil is a saponifiable oil, and it has been our practice to recommend oils containing no saponifiable matter. It is possible that castor oil might give satisfactory operation in isolated instances where the system is very dry and where operating temperatures are not high. Because of the greater tendency, as compared to mineral oils, for castor oil to enter into chemical reactions, we believe it to be inadvisable to use it with sulphur dioxide."

An expert in the field of ammonia refrigeration says:

"We strongly urge that under no circumstances should castor oil be employed with ammonia. Vegetable and animal oils with ammonia form soaps that could rapidly gum up the system. Only a high grade, low pour point, high flash point mineral oil should be employed in ammonia compressors."

Inquiries about the use of Pyroil in refrigerating compressors failed to bring forth any information as there apparently has not been much experience with this product.

### Wants Technical Data on Electrolux & Superfex

Parks & Hull  
Appliance Corporation  
Baltimore, Md.

Editor:

We are very anxious to obtain some technical information relative to the theory and operation of the Electrolux air cooled refrigerator and the refrigerator put out by the Perfection Stove Company and using oil as a fuel.

We will appreciate your sending us any information you have, or giving us any references that you may have to direct us to the information we desire.

GEORGE J. ROCHE,  
Treasurer.

Answer: A technical article on the theory and operation of the Electrolux air-cooled refrigerator, written by W. R. Hainsworth, director of the Electrolux Laboratories, was published in the March 29, 1933 issue of ELECTRIC REFRIGERATION NEWS.

We have published no technical information on the operation of the refrigerator put out by the Perfection Stove Co., but you may find that the articles we have published

Answer: See the "Classified" column in this issue of the News for the names of companies doing this work.

### Pressure-Temperature Chart for Freon

The Geo. H. Eberhard Co.  
Wholesale Distributors of Electric, Gas, and Oil Household Appliances  
290 First St., San Francisco  
Editor:

We are very much interested in receiving from you a refrigerant chart on Freon indicating the pressure or vacuum at various temperatures.

Recently, you published a list of seven popular refrigerants but we noticed that Freon was missing from the list. Could you mail this to us in a letter.

H. H. HANSEN,  
Vice President.

Answer: You may possibly mean the chart on seven popular refrigerants which appeared on page 14 of the March 4 issue. There are two members of the "Freon" group of refrigerants included in this chart, and they are designated as F-12 and F-114.

A complete pressure temperature chart on Freon and other refrigerants is published in the MASTER SERVICE MANUAL.

On page 15 of the Feb. 19, 1936, issue

of ELECTRIC REFRIGERATION NEWS is an answer to a letter from a service man which gives pressures for Freon and other leading refrigerants at a specific cut-in and cut-out temperature.

In the Feb. 14, 1934, and Feb. 21, 1934, and March 21, 1934, issues of ELECTRIC REFRIGERATION NEWS, you will find articles which supply data on the operating pressures for Freon.

Back issues of ELECTRIC REFRIGERATION NEWS are available at a cost of 10 cents each.

### Method of Recharging Trukold Oil Burning Refrigerator

The Electric Shop  
Masonic Building  
Eldorado, Kansas

Editor:

Can you advise us as to any method of recharging a Montgomery Ward oil burning TruKold refrigerator.

This refrigerator used ammonia as the refrigerant and we would like to recharge in the field if possible.

L. THOMASON

Answer: We have received the following letter from Montgomery Ward Co. in regard to your letter:

"It is very improbable that any service man in the country would have equipment available to make

anhydrous ammonia to be used in charging our Trukold oil burning refrigerators. It is a difficult job to mix the ammonia and distilled water, and the equipment for doing this job costs in the neighborhood of \$1000 to \$1500.

"If your customer will write us explaining the difficulties he is experiencing with this job, and advise us where they are located etc., we probably would be in a very good position to answer them direct in connection with their service problems."

### Welding Equipment for Repairing Sealed Units

Fred Thompson Company  
125 East Main Street  
Norman, Oklahoma

Editor:

Will you please give us the information where we can buy necessary welding equipment for repairing sealed units on refrigerators.

Very truly yours,

Fred Thompson Company,  
EMIL TEIL

Answer: Manufacturers of welding machines are listed on page 330 of the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY.

# Be Ready—with Rancostat for Peak-Load Replacement Business!

## America's Most Complete Line of EXACT and GENERAL Replacement Units

**HOT WEATHER** means "hustle-every-minute" for the refrigerator service man! Service calls pile up. Customers "can't wait". And when repairs or replacements of any kind are hard to make, business is lost and profits quickly fade.

There is one sure answer—when it's a matter of thermostat replacement. And the answer is—**Rancostat!** What is unquestionably the finest control unit ever built for domestic electric refrigerators is available in a complete line of replacement models.

Ranco makes many **Exact Replacements**. With these units all that is necessary to do is to take out the old thermostat and slip in the perfect fitting Rancostat. No holes to drill. No extra materials to buy. No adjustments to make.

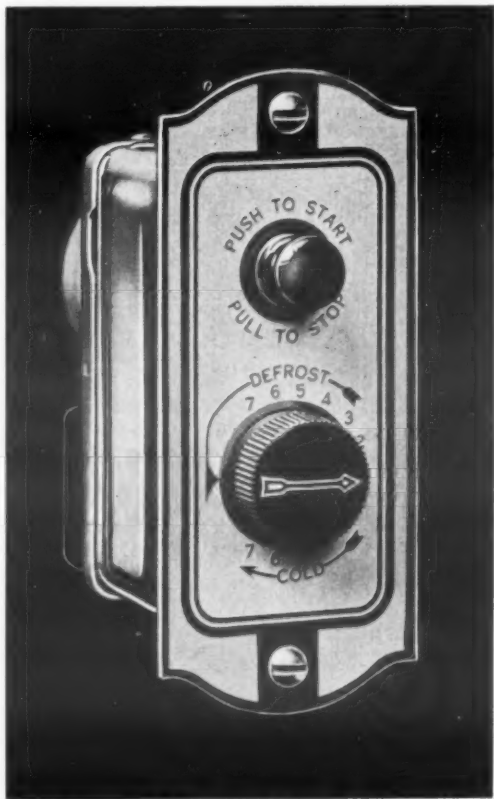
Rancostat **General Replacements** used with Ranco mounting brackets offer practically unlimited applications. Regardless of the make or model of the refrigerator, Ranco makes it possible for the service man to replace any thermostat with the minimum of effort, time and expense.

### Write for New Bulletin No. 655

Why handicap yourself with makeshift methods or time-wasting operations in making thermostat replacements? With the wide range of Exact and General Replacements offered by every Ranco jobber, you can do a **quick, clean job—save time and money**—and give your customer **absolutely dependable thermostatic control**.

There are more than three million Rancostats in successful operation. And from the very start of the industry Ranco has pioneered practically every important domestic refrigerator thermostat improvement. No other thermostat ever built approaches Ranco in strength, simplicity, durability or appearance.

See your Ranco jobber at once. Be ready for peak-load replacement business—with America's most dependable domestic refrigerator thermostat!



THE AUTOMATIC RECLOSING CIRCUIT  
BREAKER COMPANY, COLUMBUS, OHIO

# RANCOSTAT

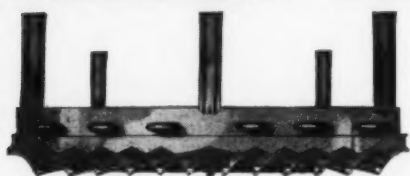
THE *Stainless Steel* THERMOSTAT



# The Buyer's Guide

Special rates apply to this column only.  
Write Advertising Dept. for full information.

## PEERLESS FLASH COOLER

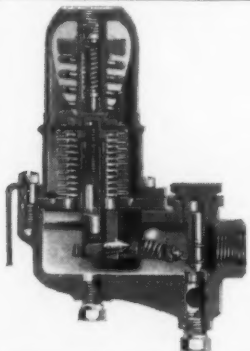


The NEW Eye Appealing  
Method of Cooling Walk-  
In Refrigerators

### STYLE & RESULTS

Fin Coil and Drip Pans Engineered in an Integral  
Unit—Saves Installation Cost and Operating Cost

**PEERLESS ICE MACHINE CO.**  
CHICAGO TWO FACTORIES NEW YORK  
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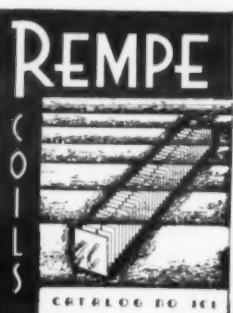
### STANDARD REFRIGERATING APPLIANCES

#### SNAP-ACTION MULTIPLE TEMPERATURE VALVES

The valve illustrated—S2V—regardless of range or differential setting opens and closes with a positive snapping action at any previously determined settings which are within its limitations. Exclusive feature is adjustable range of 20" of vacuum to 60 pounds pressure in single valve. Differential is adjustable, varying from 15" of vacuum to approximately 29 pounds at the higher pressure ranges.

Write for Bulletin 17 for full  
information and detailed drawings.

**AMERICAN INJECTOR COMPANY** 1481 14th Street, Detroit, Mich.



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Rotary Seal Replacement Unit  
Installed in a Compressor

- QUICKLY AND EASILY INSTALLED
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With the many acknowledged advantages,  
ROTARY SEAL UNITS are unquestion-  
ably the most perfect replacement seal  
units available.

ECONOMICAL, STRONG, SILENT  
GUARANTEED TO GIVE PERFECT SATISFACTION

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Any three books.....	6.50	8.00
Any four books.....	7.50	9.00
Any five books.....	8.50	10.00

### Canadian Combination Rates

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- ☐ The 1935 Refrigeration & Air Conditioning Directory.
- ☐ The 1935 Refrigeration & Air Conditioning Market Data Book.

Name .....

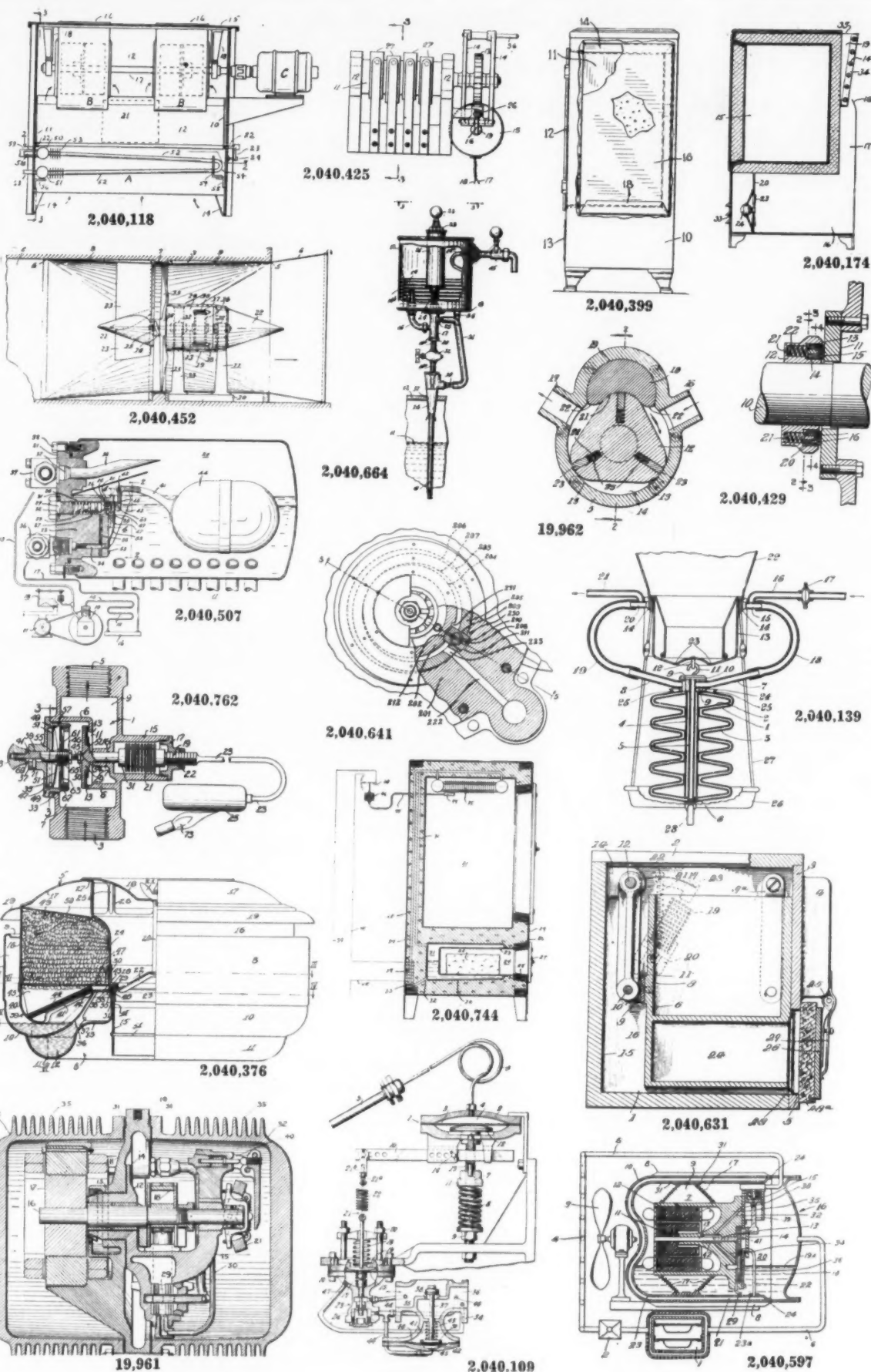
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City .....

State .....



## Patents

Issued May 12, 1936

2,040,109. TEMPERATURE CONTROL DEVICE. Paulsen Spence, East Orange, N. J. Application May 19, 1931, Serial No. 538,430. Renewed Jan. 26, 1935. 10 Claims. (Cl. 236-80.)

2,040,118. AIR CIRCULATING AND CONDITIONING DEVICE. Fred M. Young, Racine, Wis., assignor to Young Radiator Co., Racine, Wis. Application July 19, 1935, Serial No. 32,179. 6 Claims. (Cl. 257-137.)

2,040,139. MILK COOLER. Edvin Allen Karlsson, Soderkoping, Sweden, assignor to Carl Ellis Ellison, Norrkoping, Sweden. Application Feb. 26, 1935, Serial No. 8,295. In Sweden Feb. 28, 1934. 5 Claims. (Cl. 257-179.)

2,040,174. AIR-COOLED REFRIGERATOR. William R. Hainsworth, Larchmont, N. Y., assignor, by mesne assignments, to Servel, Inc., Dover, Del. Application March 30, 1933, Serial No. 663,488. 12 Claims. (Cl. 62-5.)

2,040,376. APPARATUS FOR CLEANING AIR. Theodore W. Hallberg, Chicago, Ill., assignor to United Air Cleaner Co., Chicago, Ill. Application June 21, 1935, Serial No. 27,676. 30 Claims. (Cl. 183-15.)

2,040,399. REFRIGERATOR CABINET INSULATION. Carl H. Nauert, Evansville, Ind., assignor to Servel, Inc., New York, N. Y. Application March 1, 1934, Serial No. 713,441. 3 Claims. (Cl. 220-9.)

2,040,425. CONTROL MECHANISM. John L. Blach, New Haven, Conn., assignor to The Engineering and Research Corp. Ap-

plication July 31, 1931, Serial No. 554,223. 9 Claims. (Cl. 175-294.)

2,040,429. ROTARY ELEMENT SEAL. Ruloff D. Corke, Yonkers, N. Y. Application Oct. 25, 1933, Serial No. 695,068. 2 Claims. (Cl. 286-7.)

2,040,452. FAN CONSTRUCTION. Theodor Troller, Akron, Ohio. Application March 23, 1934, Serial No. 717,000. 1 Claim. (Cl. 230-120.)

2,040,507. PUMP FOR REFRIGERATION APPARATUS. Matson C. Terry, Detroit, Mich., assignor to Westinghouse Electric & Mfg. Co. Application May 2, 1931, Serial No. 534,536. Renewed May 9, 1935. 12 Claims. (Cl. 230-206.)

2,040,597. REFRIGERATING APPARATUS. Theodore L. Chisholm, Pleasant Ridge, Mich., assignor, by mesne assignments, to General Motors Corp. Application Sept. 29, 1930, Serial No. 485,176. 1 Claim. (Cl. 137-68.)

2,040,631. MEANS FOR CONTROLLING SOLID CO<sub>2</sub> FOR REFRIGERATION PURPOSES. Walten B. Robe, Towson, Md., assignor, by mesne assignments, to William Burnet Wright, Baltimore, Md. Application Feb. 3, 1933, Serial No. 655,134. 21 Claims. (Cl. 62-91.5.)

2,040,641. REFRIGERATION. John D. Bingham, Dayton, Ohio, assignor, by mesne assignments, to General Motors Corp. Application Dec. 23, 1932, Serial No. 648,695. 8 Claims. (Cl. 230-147.)

2,040,664. PORTABLE COLD BEER DISPENSER. Charles O. Marx, Baldwin, N. Y. Application Feb. 13, 1935, Serial No. 6,295. 7 Claims. (Cl. 225-16.)

2,040,744. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor, by mesne assignments, to General Motors Corp. Application Jan. 27, 1932, Serial No. 589,194. Renewed July 17, 1935. 9 Claims. (Cl. 62-91.5.)

2,040,762. THERMOSTATICALLY CONTROLLED DEVICE. John A. Spencer,

Newtonville, Mass., assignor to General Plate Co., Attleboro, Mass. Application April 9, 1934, Serial No. 719,704. 4 Claims. (Cl. 158-117.1.)

### REISSUES

19,961. MOTOR COMPRESSOR UNIT. Harvey E. Crane, Fort Wayne, Ind., assignor to The Hoover Co. Original No. 1,704,655, dated March 5, 1929, Serial No. 175,975, March 17, 1927. Application for reissue Feb. 18, 1931, Serial No. 516,704. 16 Claims. (Cl. 230-58.)

19,962. COMPRESSOR. Miller R. Hutchison, Jr., Madison, N. J., assignor to Multicycol Pump & Engine Corp., New York, N. Y. Original No. 1,942,428, dated Jan. 9, 1934, Serial No. 652,862, Jan. 21, 1933. Application for reissue Jan. 8, 1936, Serial No. 58,236. 2 Claims. (Cl. 230-149.)

### PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. Van Deventer (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

## 82-Page Gilmer Catalog Gives Belt Sizes for Refrigerators

PHILADELPHIA—L. H. Gilmer Co. has just issued a new 82-page catalog, listing its complete line of Gilmer V-belts for electric refrigerators, washing machines, water and beer pumps, wood working machines, and oil burners.

Included in the catalog is a complete list of standard fractional-horsepower belts in 1/4, 1/2, and 3/4-inch widths. The belts are listed by number, indicating the makes of equipment served by each, and by belt length.



## Lack of Purchasing Power and Not Added Cost of Electricity Has Held Refrigerator Sales Back—Utility Speaker Claims

(Concluded from Page 1, Column 3)

fix that cost for the various types and classes of service furnished. Cost of service to any one customer or to any class of customers has about as many different values as there are theorists trying to find them. An analysis of cost at best can only be used to guide the judgment of the management in fixing prices which will support the business as a whole.

"The same distribution systems usually serve all of the various classes of service, such as domestic, commercial, industrial, etc., but no two systems have the same proportion of the several uses and in any particular system the proportion between the various classes of service supplied will vary widely from time to time. These changes are due to changes in industrial load in periods of prosperity and depression.

### Shouldn't Burden Other Classes

"No class of customers or no class of service should be a burden upon other classes. Each class should pay all of the additional cost incurred to serve that class and in addition contribute something towards the reduction of the total average cost so that all classes may share in the benefit of the additional load.

"While this is recognized as sound principle in the development of an electrical system from the engineering, economic, or accounting standpoint, there is in addition a legal requirement which cannot be overlooked—there shall be no unjust discrimination between customers. What this means is that like service furnished to like customers under like conditions must be furnished at like rates. It should not mean that the percentage of profit in all classes of service should be the same."

### Analyzes Domestic Electric Bill

"If John Smith has need of an electric refrigerator, and has not bought one, the deterring factor has been his lack of ability to purchase the refrigerator—and not the added cost of the energy it would use in its operation," said W. G. Vincent, vice president of Pacific Gas & Electric Co., in presenting an analysis of the average domestic electric bill for the past 30 years for the 51 cities of the United States used by the Department of Labor in compiling its data on cost of living.

Pointing out that the average rate per kilowatt-hour 50 years ago was 25 cents and that, except for one year at the close of the World War, there had been a continuous annual decrease until 1935 when it had reached 5 cents, Mr. Vincent stated, "Had the 1926 average rate for each class of service remained in effect to 1935, the electricity used during that period would have cost the public \$2,921,839,000 more than was actually paid.

### Forces Affecting Rate Trends

"Two powerful forces are shaping the recent trend of electric rates—economic considerations tending to adjust schedules to a consistency with the value of the service to the users, while regulatory authority has been exerted to bring about an equalization of all charges irrespective of the value of the service," said Mr. Vincent.

"We can confidently assert that there is no business where the method of charge for the commodity or service supplied has been subject to more searching and careful analysis or where more varied methods have been given the acid test of practical application."

### Feeling of Consumers

"Regardless of what the critics are saying, the action of the public in increasing its use of our service clearly demonstrates that it did not feel that electric rates in general are unreasonably high, burdensome, or restrictive of use," said Mr. Vincent.

"During the past five years the reduction in personal income has been so great that the people have been compelled to make a re-examination of the importance or worth to them of the various commodities and services which they have been in the habit of buying. With the drastic shrinkage in income it became necessary to drop something out of the scale of living; a process of choice which is the very essence of economic conduct. The value to them of various items must be judged by their retaining some and dropping others.

### Value of Service Is High

"When submitted to this test, the economic conduct of domestic customers is conclusive proof that the value of that service to them is extremely high; in fact, higher than most other things for which they spend their income. They have increased their consumption of electricity for domestic use, increased their expenditures for that service, spent money for appliances so they could use more of that service, and

at the same time have curtailed their purchases of other goods."

"The critics of the industry have told us repeatedly during recent years that if we would reduce our rates we would increase our sales and profits," said Mr. Vincent, commenting that there are any number of specific instances which prove that such generalization is absolutely unjustified.

"The critics speak of a 'hump' to be gotten over and of 'breaking a log jam,' as if all that were needed was a rate reduction to unloose such a flood of additional use of electricity that not only would the gross revenue be promptly restored but even the net revenue might be at least as good as before.

### Experiments with Lower Rates

"This problem is not new to you. The management has constantly sought ways of increasing use and in favorable situations has not hesitated to make rate reductions in anticipation—in fact sometimes even upon the mere hope of increased use in sufficient volume to overcome the reduction, both as to gross and net, but it is obvious that such experimenting should never be done rashly, never by taking for granted anything which could be resolved in advance.

"In the domestic and especially in the heating and cooking field, a most important consideration is the price at which competitive fuels are available. Unless the contemplated rate reduction can be made sufficient to compete with these fuels, it may be futile and little or no stimulation result."

### Measure of Sales Results

Speaking on "Merchandise Accounting," W. H. Swinney, controller of West Penn Power Co., Pittsburgh, emphasized the function of accounting as a measurement of sales results as well as a record of income and outgo.

He pointed out that merchandise accounting means, in addition to accounting, the adoption and use of statistical computations in the preparation of trustworthy reports upon which the exercise of executive business judgment may be based.

A true record of the results of merchandising electric appliances, Mr. Swinney said, shows them to be more profitable than some other types of business—the extension of rural lines, for instance.

### Cost of Accounting

That the fog of bookkeeping details is rapidly becoming so dense as to obscure all vision of real objectives and that accounting systems are insidiously being made the machinery for the confiscation of utility property were fears voiced by several speakers.

"If there is any one thing that this nation needs most, it is a return to the old-fashioned concept that cost should not exceed its economic value, whether it be of accounting, shoes, steam plants, CWA, PWA, AAA, or TVA," declared C. E. Kohlleppe, vice president of Wisconsin Public Service Corp., in his address on the "Cost and Economic Value of Accounting Elaboration."

"A suitable accounting system, matched to the size and needs of a business, throws to the surface significant facts. The cost of detail is justified if the management is materially aided in understanding the present or charting its future course. The converse of this is that unused or unusable accounting elaboration is absurd."

### Adaptation to Specific Needs

"A uniform system of accounts should not impose refinements that are not generally useful, but should leave to each utility the problem of adapting the standard accounting program to its specific needs," said Luther R. Nash, vice president of Stone & Webster Engineering Corp., in his address on the "Fundamentals of Utility Accounting."

"Any accounting refinement, the purpose of which is to save money in operation or construction, which in itself costs more than the possible resultant saving is not only superfluous but absurd.

### Methods of Accounting

"In spite of the interest of regulatory authorities in the accounting of the utilities under their supervision, it should be obvious that such records are not intended and cannot be the sole basis of regulation, and should not be designed from that point of view. A system of accounts cannot be made a manual of regulatory procedure. Nevertheless proposals from without the industry for new systems of utility accounting have embodied such radical departures from existing methods and disregard of their basic principles as to call for a careful reconsideration of the whole subject."

Under guise of the excuse that such maneuvers are necessary "to obtain

important information as an aid to regulation and in order to lay a basis for the compilation of valuable statistical data," radical new theories of accounting are being used to confiscate utility property, declared H. L. Gruhn of Consolidated Gas, Electric Light & Power Co. of Baltimore in his speech on "Aboriginal Cost."

### Speech on Kitchen Bureau

"An unsound principle is now being proposed for the recording on our balance sheets a group of assets which constitute 80% to 90% of the total," continued Mr. Gruhn. "This is the principle which is officially called 'original cost' and which has been facetiously, though accurately, called the principle of 'aboriginal cost.' This amazing doctrine proposes that we shall replace our present balance sheet data with figures which are neither 'cost' nor 'value.' It assumes the knowledge of hindsight in expecting that the original owner knew at the time he installed an item of property just how long it would last and the principle quite destroys, after several years of its operation, the ability of a utility to ascertain the costs of its property to the present owners."

George E. Whitwell of Philadelphia Electric Co., director of the E. E. I. National Electrical Manufacturers Association Kitchen Modernizing Bureau, will speak tomorrow on "Modernize—Electrify Your Kitchen," and Wednesday morning's session will be largely devoted to a discussion of the problems and opportunities involved in rural electrification.

### Air-Conditioning Symposium

Wednesday afternoon will be featured by a symposium on air conditioning, led by Vice President C. E. Michel of Union Electric Light & Power Co., St. Louis. Mr. Michel will review "The Utilities' Position in the Air-Conditioning Field."

Other speakers on air conditioning will include R. H. Tillman of Consolidated Gas, Electric Light & Power Co. of Baltimore on "Room Cooling with Portable Units," and W. G. Moore of Texas Power & Light Co., Dallas, on "House Ventilation Through the Attic."

## The Ultra-Modern in Showrooms



Patterned after the current Kelvinator advertising in class magazines (with the Count Alexis de Sakhnoffsky influence) is the decorative scheme of the remodeled showroom of the Kelvinator branch in Cambridge, Mass.

## Kelvinator Remodels Headquarters of Cambridge (Boston) Branch

CAMBRIDGE, Mass. — Completely remodeled and reconditioned, the showroom and new model kitchen of the Kelvinator Corp.'s branch office at 620 Memorial Drive here, were recently opened.

The new showroom was built to provide a place where dealers in this metropolitan area might bring their customers to view the complete line of Kelvinator refrigerators and allied lines.

Modernistic in styling, the decorative scheme of the showroom is based

on Kelvinator's current advertising designed by Count Alexis de Sakhnoffsky. Deep blue walls and a dead black floor form an attractive setting for the refrigeration display. Remodeling work was done by Delacy & Murray, interior decorators of Boston.

A model kitchen completely equipped with Kelvinator appliances, is located at one end of the showroom. Cooking school demonstrations will be held in the new kitchen from time to time by Mrs. Carolyn Ely, branch home economist.

## DISTINCTIVE FEATURES

OF

# "Genuine Detroit"

## Thermostatic Expansion Valves



BELLOWS

"Duraflex" metal from which bellows in "Genuine Detroit" Thermostatic Expansion Valves are made is alloyed especially for this service—has greater flexibility, longer life and greater resistance to corrosion and fatigue.

NEEDLES AND SEATS

"Delubaloy" is another special metal built for maximum resistance to wear, erosion and corrosion and is used in all "Genuine Detroit" Thermostatic Expansion Valve Needles and Seats.

JOINTS

Bakelite, reinforced by heavy metal band to assure a permanently tight joint.

GAS CHARGING

Gas charging provides higher efficiency, instant action with no temperature lag, greater sensitivity, the elimination of overload on the motor in starting and perfect balance for the system.

USE "GENUINE DETROIT" THERMOSTATIC EXPANSION VALVES FOR COMPLETE SATISFACTION

**DETROIT LUBRICATOR COMPANY** DETROIT, MICH. U. S. A.  
5900 Trumbull Avenue

NEW YORK, N. Y. — 40 West 40th St. • CHICAGO, ILL. — 816 S. Michigan Ave.  
LOS ANGELES, CALIF. — 320 Crocker Blvd.

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Canadian Representative — RAILWAY AND ENGINEERING SPECIALTIES LIMITED, Montreal, Toronto, Winnipeg



# The Buyer's Guide

Suppliers Specializing in Service to the Refrigeration and Air Conditioning Industries

LEADING MAKERS OF REFRIGERATING AND AIR CONDITIONING EQUIPMENT STANDARDIZE ON

## Dayton V-BELTS

Because of their outstanding advantages Dayton V-Belts have been used as original equipment on leading makes of air conditioning equipment, electric refrigerators, washing machines and other appliances for many years.

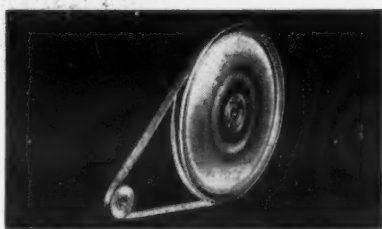
Dayton V-Belts are the logical choice because they provide silent, dependable transmission—because their powerful grip prevents slippage—because they run smoothly without weaving, twisting or vibrating.

A nearby distributor carries a complete stock of Dayton V-Belts at all

times and can quickly supply you. Write us for price list and complete information.

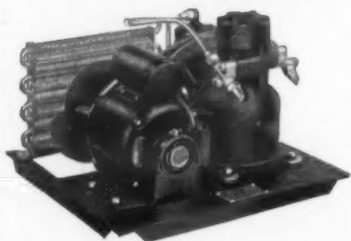
THE DAYTON RUBBER MANUFACTURING CO. • DAYTON, OHIO

World's Largest Manufacturer of V-Belts



Whether for Fractional or a Thousand H.P. there is a Dayton V-Belt Drive for the job.

## CONDENSING UNITS and COMPRESSORS

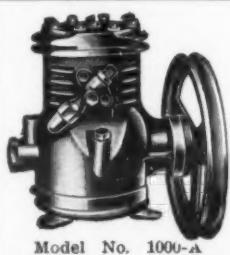


FOR HOUSEHOLD REFRIGERATION BY

**JOMOCO, INC.**

A SUBSIDIARY OF THE JOHNSON MOTOR CO. Waukegan, Ill.

CABLE ADDRESS: JOMOCO-WAUKEGAN



Model No. 1000-A

**TECUMSEH PRODUCTS CO.** Tecumseh, Mich.

## "CHIEFTAIN" QUALITY-BUILT COMPRESSORS and CONDENSING UNITS

All bearings diamond bored. Positive lubrication of piston by newly developed process plus forced feed lubrication in all models.

Sizes: 1/6, 1/5, 1/4, 1/3 h.p.

Write for prices

## OFFICES

New York 480 Lexington Ave.

Chicago 828 N. Wells St.

Detroit Export Department 1002 Palma Bldg.

Los Angeles 122 Mariposa St.

St. Louis 577 Arcade Bldg.

Dallas 215 S. Pearl St.

Just off the Press

## The IMPERIAL 1936 CATALOG

MANY new items among the refrigerator parts, valves, fittings and appliances; also a full line of oil-burner parts and equipment. New units of varied types and new service tools.

Write for Catalog 77-E

IMPERIAL BRASS MFG. CO. 566 S. Racine Ave., CHICAGO



## MILLS COMPRESSORS

for Commercial Use

Mills Novelty Company • 4100 Fullerton Avenue • Chicago, Illinois

## Refrigeration Instruments by Marsh



Jas. P. Marsh Corporation 2067 SOUTHPORT AVE., CHICAGO, ILL.

## Questions

### Refrigerators in Test

No. 2783 (Dealer, Ohio)—"Will you kindly favor us with an extra copy of March 25, 1936 issue?"

"Also can you tell us the name or brands of refrigerators numbers one to eleven in the test conducted by the Wisconsin University?"

"We subscribe to the News year after year."

Answer: We would suggest that you write to Prof. Royce E. Johnson, of the Electrical Standards Laboratory, University of Wisconsin, who conducted the tests made on the various refrigerators reported in the March 25 issue of ELECTRIC REFRIGERATION NEWS. We have no official information as to the makes of refrigerators tested.

### Air-Conditioning Companies' Addresses

No. 2784 (Distributor, California)—"Your issue of February 5 lists quite a few manufacturers of air conditioning units but does not give us their addresses. Will you please advise us where to write the

Aeriet Air Conditioning Co., Aire-Rite Corp., American Blower Co., American Radiator Co. (Air Conditioning Dept.), Bryant Heater Co., Buffalo Forge Co., De La Vergne Engine Co., Julien P. Friez & Sons, Inc., Williams Air-O-Matic's

"Any literature available on the subject of household air conditioning, we will appreciate your giving us such information so that we might procure all data available."

"We are enclosing a check for \$3 covering a year's subscription to your ELECTRIC REFRIGERATION NEWS."

Answer: We believe you will find that your weekly issues of ELECTRIC REFRIGERATION NEWS cover the air-conditioning field thoroughly. There is a great deal of data on air conditioning in each issue, and one issue each month is especially devoted to the subject of air conditioning. This data covers engineering information, as well as statistical and installation stories.

We are listing the addresses of the companies about which you inquire, with the exception of the Aire-Rite Corp., whose address we do not have.

Aeriet Air Conditioner Co., 210 S. Clark St., Chicago, Ill.  
American Blower Corp., 6000 Russell St., Detroit, Mich.  
American Radiator Co., Air Conditioning Dept., 40 W. 40th St., New York City  
Bryant Heater Co., 17825 St. Clair Ave., Cleveland, Ohio  
Buffalo Forge Co., 490 Broadway, Buffalo, N. Y.  
De La Vergne Engine Co., Philadelphia, Pa.

Julien P. Friez & Sons, Inc., 4 N. Central Ave., Baltimore, Md.  
Williams Oil-O-Matic Heating Corp., Air-O-Matic Division, Bloomington, Ill.

### A.S.R.E. Headquarters

No. 2785 (Dealer, Michigan)—"Can you supply me the address of the American Society of Refrigerating Engineers? It was in a recent issue of the News but as I've been passing my copies along, I cannot locate that particular issue."

Answer: 37 West 39th St., New York, N. Y.

### New York City Gas Rates

No. 2786 (Air Conditioning Distributor)—"Please advise us where we can get information as to the gas rates in New York City as used for cooking and gas refrigerators."

Answer: Write the American Gas Association, 420 Lexington Ave., New York, N. Y.

### Ice Makers

No. 2787 (Dutch West Indies)—"I am interested in obtaining a machine to produce ice cones only. If possible kindly send me full descriptions, of types, dimensions, capacities, price list, and best foreign discount, also catalogue, prices and discount on regular refrigerators."

Answer: Manufacturers of ice makers are listed on page 206 and 207 of the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY.

### A.S.R.E. Convention

No. 2788 (Dealer, Texas)—"Kindly inform me just when and where the next meeting of the A. S. R. E. will be, also the principal officers."

Answer: The next meeting of the American Society of Refrigerating Engineers (A.S.R.E.) will be held at Skytop Club, Skytop, Pa., June 22 to 24.

The officers of the society are: Louis S. Morse, York, Pa., president; H. M. Williams, Dayton, Ohio, vice president; Crosby Field, New York City, vice president; C. T. Baker, Atlanta, Ga., treasurer; David L. Fiske, 37 W. 39th St., New York City, secretary

### Penn Switch Co.

No. 2789 (Dealer, Illinois)—"Please send us the address of the Penn Electric Switch Co."

Answer: 200 E. Walnut St., Des Moines, Iowa.

### E. Hallstrom Co.

No. 2790 (Manufacturer, Michigan)—"In the May 13 issue mention is made of E. Hallstrom, manufacturer of kerosene-operated refrigerators. We are wondering if you can give us any further information on this manufacturer and product or possibly you can refer us to someone who is in a position to supply this information."

Answer: The E. Hallstrom company which makes kerosene-operated refrigerators is located at 462 Willoughby Rd., Willoughby, New South Wales, Australia. There is a detailed account of this company and how it operates in George Taubenbeck's "Around the World" story on Sydney, Australia, which starts on page 6 of the May 13 issue of the News.

### Combination Refrigerator

No. 2791 (Distributor, Alabama)—"The Portable Elevator Mfg. Co., of Bloomington, Ill., manufacture and sell a beverage cooler and refrigerator combined which they call 'Pemco.' Unfortunately this is enfranchised to another dealer here."

"It is probable that we will wish to add something of this nature to our line if it is obtainable."

"Can you give us the name of some one manufacturing a similar product?"

Answer: The Eagle Foundry Co., Belleville, Ill., manufactures a combination beverage cooler and refrigerator.

Others with whom you might get in touch are: General Electric Co., Electric Refrig. Dept., Nela Park, Cleveland, Ohio.

Westinghouse Electric & Mfg. Co., Merchandising Division, Mansfield, Ohio

Frigidaire Corp., Dayton, Ohio

Kelvinator Corp., 14250 Plymouth Rd., Detroit, Mich.

Crosley Radio Corp., Arlington St., Cincinnati, Ohio

Norge Corp., 670 E. Woodbridge, Detroit, Mich.

### Sales by Companies

No. 2792 (Dealer, Tennessee)—"We are a subscriber to your ELECTRIC REFRIGERATION NEWS and would like to get some information concerning the sales of the various companies."

"Which were the five leading Electric Refrigerator Manufacturing Companies according to sales for 1935?"

"Which companies showed an increase over 1934?"

Answer: The individual manufacturers of household electric refrigerators do not make their sales figures public.

However, an estimate of sales of household refrigerators during 1935, was published on page 1 of the Feb. 5 issue. In the same issue, sales of refrigerators in the United States are broken down by states.



## "NO WONDER HE'S GOOD He Trained with U.E.I."

U. E. I. students STAND OUT when they enter the Electric Refrigeration and Air-Conditioning Industry.

And no wonder . . . for they are trained along lines suggested by leading manufacturers. Leaders in the industry cooperate in making the course one that best serves the Electric Refrigeration and Air-Conditioning Industry as a whole.

U. E. I. students are SELECTED. Not every man who wants to enroll with us can do so. We pick men for their general qualifications and then give them complete training in every phase of Electrical Refrigeration and Air Conditioning work on all types of equipment. That is why the services of U. E. I. trained men are so satisfactory to employers.

Our FREE Placement Bureau can recommend a man to fill the position you have open, no matter in what part of the country it may be located.

UTILITIES ENGINEERING INSTITUTE 404 N. Wells St. Established 1927 Chicago, Illinois 17 West 60th St. New York, N.Y.

All available statistics on the refrigeration and air conditioning industries through the end of 1934 are published in the 1935 REFRIGERATION AND AIR CONDITIONING MARKET DATA BOOK, which includes an analysis of the market and survey of distributive channels. Total sales of the manufacturers by years are given both in units and dollar volume for the years 1920 through 1934.

### Sales by States

No. 2793 (Manufacturer, New York)—"We have been informed by a representative of Frigidaire that you publish data on the sales of electric refrigerators by states. We would like to secure these figures for the complete year of 1935."

"Will you kindly tell us how best we can secure such data and the source of monthly data on total or state sales of refrigerators?"

Answer: Feb. 5 issue of ELECTRIC REFRIGERATION NEWS shows the refrigerator sales by states as reported by companies who are members of National Electrical Manufacturers Association for the year 1935. Monthly sales figures of electric refrigerators by states are published in the News as soon as they are released.

### Commercial Specifications

No. 2794 (Manufacturer, Colorado)—"With reference to the May 6 issue of ELECTRIC REFRIGERATION NEWS, do the specifications of commercial refrigeration systems, that you mentioned, refer particularly to refrigeration cases or to compressors?"

Answer: Specifications information published in the May 6 issue covered commercial refrigeration machines, and also self-contained commercial refrigerator equipment. By "self-contained" we mean such equipment as water coolers, ice cream cabinets, display cases, and service refrigerators in which the condensing unit is built into the refrigerator as an integral part of the whole unit.

### Soda Fountain Makers

No. 2795 (Distributor, Puerto Rico)—"Will you please send by return air mail a list of medium and low priced soda fountains and soda fountain equipment."

"We are in a position to develop an interesting business in this line."

Answer: Manufacturers of soda fountains are listed on Page 207 of the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY.

### Tests on Electrolux

No. 2796 (Dealer, Kansas)—"We understand that sometime in the past, you published an article, giving a report of a test run by the Bureau of Standards, relative to the life of an Electrolux Refrigerator Unit."

"This was probably in 1932, for in that year the government purchased some 622 units for their army posts throughout the United States."

"If possible, we would be pleased to have a copy of this report, or advice as to where we might secure same."

Answer: We did not publish such a report.

## McCord

Refrigeration and Air Conditioning PRODUCTS

CONDENSERS

COMMERCIAL EVAPORATORS

DOMESTIC EVAPORATORS

COMFORT COOLERS

MARKET COOLERS

AIR CONDITIONING SURFACE

UNIT HEATERS

BLAST HEATING SURFACE

CATALOGS ON REQUEST

McCORD RADIATOR & MFG. CO. DETROIT, MICH.



# Sales Figures

## 15 Manufacturers Sell 299,217 Household Units in April

The following 15 member companies of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) reported household refrigerator sales for April, 1936: Apex Electrical Mfg. Co., Crosley Radio Corp., Fairbanks, Morse & Co., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Corp., Leonard Refrigerator Co., Norge Corp., Servel, Inc. (export only), Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Electric & Mfg. Co. Member companies not reporting included: Jomoco, Inc., Merchant & Evans Co., and Sparks-Withington Co.

The sales of the reporting companies do, however, include units manufactured for the following concerns: Major Appliance Corp., Montgomery Ward & Co., Potter Refrigerator Corp., and Sears, Roebuck & Co.

SALES FOR APRIL, 1936					
		Domestic		Canadian	Other Foreign
		Quantity	Value	Quantity	Value
Lacquer (Exterior) Cabinets Complete					
1. Chest	1,278	\$ 62,777	19	\$ 923	293
2. Less than 3 cu. ft.	74	4,302	.....	.....	6
3. 3 to 3.99 cu. ft.	7,097	409,276	158	9,757	3,565
4. 4 to 4.99 cu. ft.	40,472	2,658,960	1,391	94,339	5,578
5. 5 to 5.99 cu. ft.	71,087	5,444,075	1,171	97,074	1,439
6. 6 to 6.99 cu. ft.	83,935	6,833,278	358	31,177	1,035
7. 7 to 7.99 cu. ft.	21,552	2,248,138	423	49,757	650
8. 8 to 8.99 cu. ft.	4,319	429,262	4	403	94
9. 10 to 12.99 cu. ft.	51	9,305	.....	.....	.....
10. 13 cu. ft. and up	1	208	.....	.....	.....
11. Total Lacquer	229,866	18,099,581	3,529	283,430	12,660
Porcelain (Exterior) Cabinets Complete					
12. Up to 4.99 cu. ft.	1,934	145,210	106	8,411	109
13. 5 to 5.99 cu. ft.	1,829	829,407	91	7,703	267
14. 6 to 6.99 cu. ft.	18,659	1,739,630	89	8,530	227
15. 7 to 7.99 cu. ft.	8,525	990,557	35	3,840	325
16. 8 to 8.99 cu. ft.	4,238	541,719	19	2,368	200
17. 10 to 12.99 cu. ft.	553	93,923	2	379	58
18. 13 cu. ft. and up	500	120,545	1	212	48
19. Total Porcelain	44,238	4,460,991	343	31,443	1,234
20. Total—Lines 11 and 19	274,104	22,560,572	3,872	314,873	13,894
21. Separate Systems	2,292	94,345	.....	4,161	180,706
22. Separate Household Evaporators	325	5,941	46	710	523
23. Total—Lines 20, 21, 22	276,721	.....	3,918	.....	18,578
24. Condensing Units	688	43,091	21	1,310	434
25. Cabinets—No Systems	322	11,818	.....	88	5,475
26. Total Household	.....	\$22,715,767	.....	\$316,893	.....
27. Total	.....	.....	.....	.....	\$1,240,037

## New York & Pennsylvania Distributors & Dealers Buy Most Refrigerators during April, 1936

States and Territories	Quantity of Household Low Sides
Alabama	4,016
Arizona	1,115
Arkansas	1,592
California	19,981
Colorado	1,758
Connecticut	5,033
Delaware	606
District of Columbia	2,048
Florida	2,808
Georgia	4,803
Idaho	1,319
Illinois	19,687
Indiana	6,905
Iowa	4,288
Kansas	3,545
Kentucky	2,936
Louisiana	3,378
Maine	1,213
Maryland	3,299
Massachusetts	12,118
Michigan	11,581
Minnesota	2,762
Mississippi	2,095
Missouri	8,807
Montana	1,085
Nebraska	2,822
Nevada	336
New Hampshire	1,174
New Jersey	12,897
New Mexico	653
New York	31,234
North Carolina	6,023
North Dakota	421
Ohio	16,639
Oklahoma	3,274
Oregon	3,094
Pennsylvania	25,208
Rhode Island	1,625
South Carolina	3,027
South Dakota	658
Tennessee	5,302
Texas	13,730
Utah	1,274
Vermont	735
Virginia	4,646
Washington	4,148
West Virginia	3,516
Wisconsin	5,193
Wyoming	314
Total United States	276,721
Canada	3,918
Other Foreign (Including U. S. Possessions)	18,578
Total for World	299,217

# SAFETY



Elemental safety of refrigeration units is imperative—it is the cardinal principle upon which rests public acceptance of automatic refrigeration.

Important contributors to safety are Commonwealth Seepage-Proof Brass Fittings; used by the industry since its birth.

These fittings are made to most exacting requirements.

1. They are seepage proof
2. They are accurately machined
3. Every tube seat is protected
4. Every thread is machined to S. A. E. No. 2 standard

**BUILT RIGHT—TO STAY TIGHT**

Stocks of Standard and Semi-standard fittings constantly maintained, insure utmost celerity of shipments; one piece or a million.

**COMMONWEALTH BRASS CORP.**

Commonwealth at G. T. R. R.  
Detroit, Mich.

## EH&FA Will Finance Sales of Appliances By Other Utilities

WASHINGTON, D. C.—Electric Home and Farm Authority has announced that it will make its credit facilities available to assist in the purchase of electrical appliances in areas served by utilities with power rate schedules within an "established maximum."

The EH&FA program is financed by RFC funds and makes long-term loans for credit extension in certain areas to aid in the purchase of domestic electrical equipment.

Should Congress pass the pending Rural Electrification bill, which allots federal money for the erection of power facilities in rural areas not now served, a rapid extension of the scope of EH&FA is expected.

At present, officials say, their work is confined to areas in which they have been able to work out collection agreements with utility companies.

### Act as Agent for EH&FA

Such agreements enable the power company to act as an agent of EH&FA in making monthly collection of payments due to Authority on appliance purchases.

Heads of EH&FA have been conferring with retail representatives in an endeavor to work out a more satisfactory collection system.

Since high rates both restrict the sale of appliances and increase the credit risk, EH&FA announced that its policy will be to assist in the extension of credit only in areas where utilities are within an established "maximum level" and whose policy provides for period adjustments toward "accepted levels" as their use of electricity increases.

### 'Maximum' and 'Accepted' Levels

The following are the "maximum" and "accepted" levels:

**Maximum**—In urban areas, the present rate for the first 25 kwh.; 5 cents per kw. for the next 50; 3 cents per kw. for the next 150; and 1.5 for all over 225. In rural areas, the present rate on the first 25; 6 cents per kw. for the next 50; 3.5 cents for the next 150; and 2 cents over 225. The "present" rate may vary, but the first 50 kw. hours must not cost over \$3.25 in urban areas, and \$5 in rural areas.

**Accepted Level**—In urban areas the present rate for the first 25 kw. hours; 3 cents for the next 50; 2 cents on the next 150; and 1 cent over 225. In rural areas present rate on first 25; 4 cents on next 50; 2.5 cents next 150; and 1.5 over 225.

For the first 50 kwh., regardless of first 25, cost must not exceed \$2 in urban areas, and \$3.50 in rural areas.

## Gain in Trailer Sales Seen as Market for Appliances

WASHINGTON, D. C.—The 1936 touring parade, expected to be the largest in history, will comprise nearly 1,000,000 persons enjoying the comforts of home along the highways in house trailers, according to reports of American Automobile Association members. Seen in the trend is the possibility of a new market for modern electrical conveniences such as refrigeration.

An estimated number of 100,000 people or more have given up their homes entirely and now live permanently on wheels, the A.A.A. statement declares.

Of the many parks and camps now dotting the country for trailer occupancy, an increasing number, the association states, provide special running water and electric light connections that can be fitted directly to the trailer bodies.

The automobile club describes the increase in popularity of these "homes on wheels" as nothing short of phenomenal.

"Trailers unquestionably have come to stay and it is more than probable that an increasing number of roaming bungalows will participate in the annual outpour of highway travelers."

Growth in the trailer's use has been reflected at touring counters of the A.A.A. clubs, where routings are sometimes made for a trip lasting a year or more and covering the entire country.

"Economy, comfort, and absolute freedom of travel have been principal factors in the gaining popularity of highway homes. Persons fortunate enough to have comparatively long vacations yearly, and many retired business and professional men make up the greater part of the trailer army," members of the association say.

Already the trailer fans have organized at least two informal associations, the Tin Can Tourists of the World, and the Automobile Tourist Association, which sponsor regular meetings of the trailer population in various sections of the country.

## Egyptian Sales for 1935 Show Increase

CAIRO—Imports of domestic electrical apparatus in Egypt during 1935 totaled 15,400 pounds (Egyptian), an increase of 7,100 pounds over the figure during 1934. Current value of the Egyptian pound is approximately \$5.

Included in the figure are electric refrigerators valued at 3,000 pounds.

Imports of all electrical machinery during the year totaled 830,000 pounds (Egyptian), an increase of 25% over the 680,000 pounds reported for 1934. While the increase was spread over every important group, it was especially notable in the cable and radio sections of the trade.

The United States leads in the importation of radio receiving sets, with a value during 1935 of 83,000 pounds.

## Jensen & Meyer Are Elected Rotary Seal Officers

CHICAGO—At the recent annual meeting of the board of directors of the Rotary Seal Co., manufacturer of compressor shaft seals, H. Jensen, superintendent, was elected vice president in charge of production, and Walter W. Meyer, vice president in charge of sales engineering.

# Classified

RATES: Fifty words or less, one insertion, \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Electric Refrigeration News, 5229 Cass Ave., Detroit, Mich.

### POSITIONS WANTED

SALES MANAGER of commercial and domestic refrigeration and appliances, now employed, desires similar position with aggressive distributor or dealer, preferably in South. Twelve years' experience in refrigeration and appliance selling. Can train salesmen, organize and develop territory. Can figure, accurately, all types commercial jobs. Give full particulars in first letter. Box 803, Electric Refrigeration News.

A PERMANENT position with a good future is desired in the office of manufacturer's engineering department or firm of consulting engineers. Several years' experience—clerical, typing, electric refrigeration servicing, testing and inspecting of commercial equipment. Age 29. Reasonable salary if connection is made with right organization. Available June 15th. Box 804, Electric Refrigeration News.

### EQUIPMENT FOR SALE

NEW, single and twin cylinder methyl compressors, especially adaptable, domestic and small commercial installations; condensers, receiver valves, pulleys, fans; motors, ¼ to ½ H.P.; fittings, expansion valves, Bristol recording instruments, etc.

All new merchandise in original containers. Will make prices attractive for quick disposal. Box 775, Electric Refrigeration News.

**REFRIGERATOR DEALERS!** Make money with Federal's reconditioned refrigerators, 1000 refrigerators such as Frigidaire, G. E., Kelvinator, Electrolux, etc., completely remanufactured and rebuilt, some as is, as low as \$15; also hundreds of new refrigerators priced for promotional purposes. Federal Refrigerator Corp., 57 East 25th St., New York.

**METERICE METERS:**—We have approximately 250 General Electric meterice payment meters for sale. Complete with gears for 15¢–20¢–25¢ daily payments. All are in good working order. Will close out at \$2.00 each f.o.b. Pittsburgh, Pa. Spear and Company, 915 Penn Avenue, Pittsburgh, Pa.

**BRAND NEW PARTS.** Manufacturers' closeouts—fully guaranteed one year. Detroit Lubricator thermostatic expansion valves, model 673 flange type, \$3.95, equipped with S.A.E. fitting \$4.45. Detroit Lubricator solenoid valves, model 682, \$3.95. "Automatic" model No. 71 solenoid water valves \$3.75. Model No. 73 R \$3.75. Mullins 3 tray evaporators in all porcelain, complete with porcelain front and porcelain suspension plate trays, etc., \$6.95. Hundreds of other exceptional buys, as well as a complete line of standard nationally advertised parts, at drastic price reductions. Write for our catalog. Federal Refrigerator Corporation, 57 East 25th Street, New York City.

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# The Refrigeration Engineer's Manual

By S. L. Potts

## Methods of Calculating Capacity Of Indirect Expansion System

### Chapter 10—Indirect Expansion (Continued)

**Brine Tank Size—Continuous Operation.** The capacity of a brine tank for continuous operation of the compressor may be about 50 to 60 cu. ft. of brine for each ton of refrigeration.

**For Part Time Operation.** When the compressor operates only part time of each day (24 hours) the capacity of the brine tank will be greater. Also, the initial and final temperatures of the brine may increase.

The capacity of plant in tons of refrigeration in 24 hours must be produced in the period during which the plant operates. If the plant operates 12 hours, then the tank has to have a refrigerating capacity that will be twice the refrigeration produced.

W weight of brine in pounds.

Rr refrigeration capacity of refrigerated space in tons per 24 hours.

Re refrigeration capacity of the compressor in tons per 24 hours.

Rm refrigeration capacity in B.t.u. absorbed per minute per ton of refrigeration.

h hours time the compressor operates per day of 24 hours.

t<sub>1</sub> temperature of brine in degrees Fah. when compressor starts.

t<sub>2</sub> temperature of brine in degrees Fah. when compressor stops.

t<sub>3</sub> temperature of brine in degrees Fah. entering the brine cooler.

t<sub>4</sub> temperature of brine in degrees Fah. leaving the brine cooler.

Cb specific heat of brine.

Sg specific gravity of brine.

d density of weight of brine in lbs. per cu. ft.

$d = Sg \times 62.4$   
The refrigeration rate per hour =  $\frac{R}{24}$

The refrigeration required for non-operating period that has to be supplied by brine in Ra (24-h)

$24$

This quantity of refrigeration must be taken out of the brine with a rise in the brine temperature as a result.

Refrigeration taken out of the brine for the time compressor is shut down can be expressed by formula.

$$Rr(24-h) = W \times Cb \times (t_2 - t_1)$$

Solving this for the weight of brine required is:

$$Rr(24-h) \times 288000$$

$$W = \frac{24 \times Cb \times (t_2 - t_1)}{Rr(24-h) \times 12000}$$

$$W = \frac{Cb(t_2 - t_1)}{Rr(24-h) \times 12000}$$

The value used for the specific heat of the brine must be for the specific

gravity of the brine at the lowest temperature of the brine at any time, or at the temperature of brine when the compressor stops.

The volume of the brine tank required in cu. ft. is:

$$\text{Volume of tank} = \frac{W}{d}$$

As all the refrigeration has to be produced in a time less than 24 hours, the capacity of the compressor will have to be greater than the capacity for the refrigerated space. The compressor capacity will be:

$$Rr = 24 \times \frac{W}{h}$$

The amount of brine that is required to circulate per minute for the absorption of the heat is:

$$Rr \times Rm = \text{The B.t.u. per minute for plant capacity}$$

The heat absorbed by 1 lb. of brine changing 1° F. is Cb. Brine required to be circulated per minute to absorb the total heat is:

$$Rr \times Rm$$

$$W = \frac{Rr \times Rm}{Cb \times (t_2 - t_1)}$$

Thus Calcium Chloride brine at 1.132 specific gravity and freezing temperature of 12.5° F. the specific heat is .793 or 1 lb. of brine will require .793 B.t.u. to raise its temperature 1° F. and 1,000 lbs. of this brine will absorb 793 B.t.u. in raising 1° F.

The weight of brine required to be circulated per minute to absorb 20 tons of refrigeration with 2° temperature rise is:

$$Rr \times Rm = 20 \times 200$$

$$W = \frac{Rr \times Rm}{Cb \times (t_2 - t_1)} = \frac{2522 \text{ lbs. brine per minute.}}{.793 \times 2}$$

To Find This In Gallons the table gives 9.45 lbs. per gallon so

$$\text{Gals per minute} = \frac{2522 \text{ lbs.}}{9.45} = 267 \text{ gals. per minute.}$$

To Find This In Cubic Feet the table gives 70.6 lbs. per cu. ft. so

$$\text{Cu. ft. per min.} = \frac{2522}{70.6} = 35.7 \text{ cu. ft. per min.}$$

If this brine tank contained 5,340 gals. of brine, the entire amount would be circulated once every 20 minutes.

To Find the Velocity of Brine Flowing in Ice Tank. The tank is usually divided into two by a partition running lengthwise of tank. The brine flows down one side and returns on other side. The ice cans and evaporating coils take up a good part of this area so the brine must flow through the space between cans. If the tank is 14 ft. wide—3 ft. 6 in. deep. Allowing the cans to occupy 70 per cent of this space we have in each side:

Net area =  $7 \times 3.5 \times 30 = 7.35 \text{ sq. ft. area to pass brine.}$   
If 35.7 cu. ft. of brine have to pass through an area of 7.35 sq. ft., then

the velocity of flow will be:

$$\text{Velocity ft. per min.} = \frac{35.7}{7.35} = \text{about 5 ft. per minute.}$$

### Chapter 11—Ice Plant

The manufacture of ice from water is carried on in mechanical refrigeration plants. The ice is frozen by the evaporation of a refrigerant. The ice is stored in large heat insulated (cold) rooms or may be delivered to the consumer for cooling purposes. Mechanical ice making plants have replaced, to a very large extent, the storage of natural lake ice for cooling purposes. The manufactured ice is frequently spoken of as artificial ice or mechanical made ice to distinguish it from the natural ice frozen on lakes or ponds in winter time, harvested, and stored in large ice houses for use in summer time.

#### Three Systems of Manufacture

There are three systems in general use for the manufacture of artificial ice. They are known as the

1. Plate ice system indirect expansion.
2. Can ice system indirect expansion.
3. Cube ice—domestic direct expansion.

#### Plate Ice System

Plate ice system of ice making is carried on in large tanks or vats usually about 10 ft. wide and about 10 ft. deep. This tank is divided into small compartments by freezing plates with coils between, which are spaced about 12 to 14 in. apart. Between each pair of freezing plates that form a partition in the tank, is a set of evaporator or expansion coils that produce the cooling and freezing of the ice on the plate surface. Expansion of the refrigerant takes place in these coils.

The water to be frozen is placed in the tank between the plates or partitions. As freezing progresses the plate becomes coated and the ice continues to form between the two plates until the whole mass is frozen solid into one large plate of ice about 12 to 14 in. thick between the two large plates. Usually two large eye bolts or a chain is frozen into the plate of ice to facilitate lifting the ice from the tank. Each plate of ice weighs about 3 tons and requires from 6 to 10 days to freeze it according to the temperatures outside and conditions inside the plant.

The slow freezing of ice on each plate permits all the impurities in the water to be rejected and can be drained off from the bottom of the tank. No air agitation is required in the plate system with raw water used for ice making.

When the ice is completely frozen, the expansion valve in the refrigerant line is closed and the expansion coils pumped out. After a short period, the temperature in the coils will raise. At this time, the process of ice harvesting can be shortened by allowing the hot compressor gases to pass through the expansion coils. This will soon loosen the plates of ice from the metal plates or partitions and they can be lifted by the overhead crane, and removed to the cutting and storage room. The tank is filled with water again and the freezing process started.

The plate system of ice making requires a much larger area of freezing tank for a given output of ice.

The load on the compressor is quite variable, being maximum at the start of the freezing period and very light near the end of the run.

The entire ice output must be harvested from one tank at the same time. This gives a large supply of ice on some days and none at other times.

(Continued on Page 27, Column 1)

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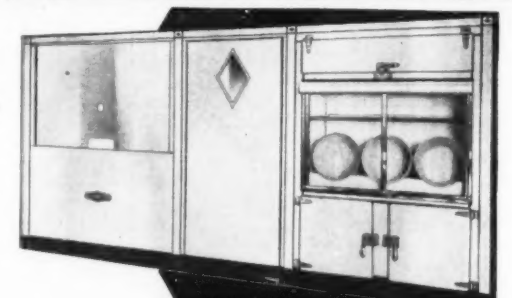
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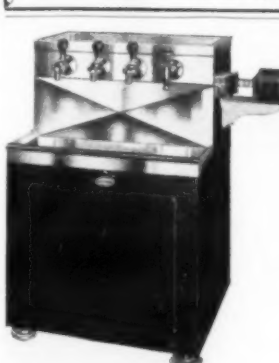
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Table 12—Properties of Sodium Chloride Brine

Per Cent Salt By Weight	Weight In Lbs. Per Gal. Water		Specific Gravity at 59° F.		Specific Heat at 59° F.		Freezing Point in Deg. F.	
0	0.0	8.35	8.35	62.4	1.000	1.000	0	32.0
1	.084	8.32	8.40	62.8	1.007	.992	1	31.5
2	.168	8.29	8.46	63.3	1.015	.984	2	30.7
3	.256	8.27	8.53	63.7	1.023	.976	3	29.8
4	.344	8.25	8.59	64.2	1.030	.968	4	27.6
5	.432	8.22	8.65	64.6	1.037	.959	5	27.0
6	.523	8.19	8.71	65.1	1.043	.947	6	25.5
7	.613	8.15	8.76	65.5	1.050	.937	7	24.0
8	.706	8.11	8.82	66.0	1.057	.927	8	23.2
9	.800	8.09	8.89	66.5	1.065	.897	9	21.8
10	.895	8.05	8.95	66.9	1.072	.888	10	20.4
11	.992	8.03	9.02	67.4	1.080	.879	11	18.3
12	1.090	7.99	9.08	67.8	1.087	.870	12	17.2
13	1.188	7.95	9.14	68.3	1.095	.862	13	15.5
14	1.291	7.93	9.22	68.8	1.103	.854	14	13.9
15	1.392	7.89	9.28	69.3	1.111	.847	15	12.0
16	1.493	7.84	9.33	69.8	1.118	.840	16	10.2
17	1.598	7.80	9.40	70.3	1.126	.833	17	8.2
18	1.705	7.76	9.47	70.8	1.134	.826	18	6.1
19	1.813	7.73	9.54	71.3	1.142	.819	19	4.0
20	1.920	7.68	9.60	71.8	1.150	.813	20	1.8
21	2.031	7.64	9.67	72.3	1.158	.807	21	-0.8
22	2.143	7.60	9.74	72.8	1.166	.802	22	-3.0
23	2.256	7.55	9.81	73.3	1.175	.796	23	-6.0
24	2.371	7.51	9.88	73.8	1.183	.791	24	-9.2
25	2.488	7.46	9.95	74.3	1.191	.786	25	-16.0

Note—At 23% salt the "Eutectic" point is reached, that is the salt will crystallize out of the solution. Brine should be kept below the Eutectic point. This is lowest freezing point.

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Illustration at left shows type F adjustable harness and adjustable pad.

For other types, also individual carrying straps, write for full information.

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3815-3825 Cortland Street, Chicago, Illinois



Table 13—Properties of Calcium Chloride Brine

Per Cent CaCl <sub>2</sub> By Weight	Lbs. Per Gal. CaCl <sub>2</sub>	Lbs. Per Gal. Water	Weight In Lbs. Per Gal.	Lbs. Per Cu. Ft. CaCl <sub>2</sub>	Lbs. Per Cu. Ft. Water	Specific Gravity At 60° F.	Specific Heat At 60° F.	Degree On Baume At 60° F.	Freezing Temp. In Deg. F.
0	0.000	8.33	8.33	0.0	62.40	1.000	1.000	0.0	32.00
1	.084	8.36	8.44	.63	62.20	1.007	.985	1.0	31.38
2	.170	8.35	8.52	1.26	62.08	1.015	.970	2.0	31.10
3	.257	8.32	8.58	1.91	61.99	1.024	.955	3.0	30.48
4	.346	8.30	8.65	2.56	61.84	1.032	.940	4.0	29.58
5	.436	8.28	8.71	3.26	61.69	1.044	.924	6.1	29.0
6	.526	8.23	8.76	3.93	61.59	1.050	.914	7.0	28.0
7	.620	8.23	8.85	4.63	61.51	1.060	.898	8.2	27.0
8	.714	8.21	8.92	5.34	61.36	1.069	.884	9.3	25.5
9	.810	8.19	9.00	6.05	61.22	1.078	.869	10.4	24.0
10	.908	8.16	9.07	6.78	61.05	1.087	.855	11.6	23.0
11	1.006	8.13	9.14	7.52	60.81	1.095	.842	12.6	21.5
12	1.107	8.12	9.22	8.27	60.68	1.105	.828	13.8	19.0
13	1.209	8.09	9.30	9.04	60.47	1.114	.816	14.8	17.0
14	1.313	8.06	9.37	9.81	60.27	1.123	.804	15.9	14.5
15	1.418	8.03	9.45	10.60	60.04	1.132	.793	16.9	12.5
16	1.526	8.01	9.53	11.40	59.86	1.142	.779	18.0	9.5
17	1.635	7.98	9.61	12.22	59.67	1.151	.767	19.1	6.5
18	1.747	7.95	9.70	13.05	59.46	1.162	.756	20.2	3.0
19	1.859	7.92	9.78	13.90	59.23	1.172	.746	21.3	0.0
20	1.970	7.88	9.85	14.73	58.90	1.180	.737	22.1	-3.0
21	2.085	7.84	9.92	15.58	58.61	1.189	.729	23.0	-5.5
22	2.208	7.82	10.03	16.50	58.30	1.202	.716	24.4	-10.5
23	2.328	7.79	10.12	17.40	58.23	1.212	.707	25.5	-15.5
24	2.451	7.76	10.21	18.32	58.00	1.223	.697	26.4	-20.5
25	2.574	7.72	10.29	19.24	57.70	1.233	.689	27.4	-25.0
26	2.699	7.68	10.37	20.17	57.39	1.243	.682	28.3	-30.0
27	2.827	7.64	10.47	21.13	57.12	1.254	.673	29.3	-36.0
28	2.958	7.60	10.56	22.10	56.84	1.265	.665	30.4	-43.5
29	3.090	7.56	10.65	23.09	56.53	1.276	.658	31.4	-53.0
29.5	3.153	7.53	10.68	23.56	56.31	1.280	.655	31.7	-58.0

Weight of 1 Gal. = Sp. Gr. × 8.35  
 Weight of 1 cu. ft. = Sp. Gr. × 62.4  
 Freezing temperatures given are for still brine.

### Three Methods of Freezing Are Used in Manufacture of Artificial Ice

(Concluded from Page 26, Column c)  
 Storage must be supplied for carry over.

The freezing period is too long for economical operation of the plant. The cost of plate ice runs 25 per cent over the can system.

The plate system produces a very high grade of ice. It is very clear, transparent, and solid. The plate system can produce good ice from raw water.

#### Can Ice System

The can system of ice making consists of freezing much smaller quantities of water inside a can built of thin galvanized sheet steel. These cans vary somewhat in size varying in thickness of ice produced from 6 in. to 11 in. and in weight from 50 lbs. to 400 lbs. of ice. The standard size can produces 300 lbs. of ice and is 11x22x44 in.

These thin metal cans are nearly filled with the pure water to be made into ice. They are lowered into a brine tank and covered. The brine in this ice freezing tank is kept at temperatures of 15° F. to 18° F. by passing the brine repeatedly through or over expansion coils arranged in many different ways to suit the ideas of many different operators and designers. The results obtained vary somewhat.

The heat contained in the water inside the can is absorbed by the brine through the thin metal wall of the can and carried to the evaporator coils where it is absorbed by the

refrigerant. The circulation of the brine through the brine cooler or over the coils is produced by pumps or propellers usually driven by electric motors. The velocity of brine is low.

A brine tank usually contains many cans of water in the process of freezing. It should be arranged so that only a small number of ice cans are removed from the brine tank each hour and replaced with the fresh supply of water to be frozen. When the same number of cans of ice are harvested each hour of every day, the compressor load is very uniform, the brine temperature is unchanged, and the best result is produced most economically.

As all four sides and the bottom of the ice can is subjected to the freezing action of the brine, ice forms on the inside on all the four sides and grows towards the center. The center and top is always the last to freeze.

If any impurities are contained in the water used to make the ice, these will appear in the center of the core of ice. When impurities gather in the core, they should be drawn off and replaced with pure water to freeze. Due to the fact that more surface is exposed to the action of the cold brine, a can of ice can be frozen in much less time than a plate of ice. Most can ice systems use air agitation inside the freezing can to assist in removing the air absorbed in the freezing water and to draw other impurities to the core.

When condensate is used in cans for making ice, many of the difficulties with impurities and air are removed. Ice made from condensate is known as distilled water ice.

Raw water is used and a good grade of ice can be made with air agitation. Some water may require treatment and filtering.

#### Advantages of Can Ice System

1. It produces a uniform supply of ice.
2. The load on the compressor is uniform, producing a lower operating cost of power. The recharging of the cans is carried on at regular periods and a uniform amount.
3. The freezing time required is much shorter than the plate ice system.
4. The grade of ice produced is very satisfactory and is equal to the plate ice.
5. The size of tank for given output is smaller.
6. The operating cost per ton of ice is less.
7. Constant temperatures are maintained in the brine tanks and in evaporating coils.
8. The handling cost is lower. Less weight in cans are handled by lighter cranes. Blocks of ice are placed in storage easier.

The system can be operated electrically. No boilers are required to furnish the distilled water.

#### Disadvantages of Can Ice System

1. The expansion is indirect and requires a greater temperature difference between ice and ammonia.
2. Cost of brine in tank.
3. Cost of brine circulating equipment and pipes and cost of operating them.
4. Cost of ice cans, new, replacement, and breakages.
5. Possibility of getting dirt or brine in the open cans.
6. Cost of air agitation system of piping, the air pump, and cost of power to operate them.

#### Cube Ice for Domestic Service

This is made in small trays with metal dividers fitted into the tray to divide the ice into cubes. The dividers also act as heat gathering agents collecting the heat from the water in the trays. This system is usually direct expansion of the refrigerant.

Most domestic boxes use a refrigerant that is not destructive to food products. Therefore, direct expansion is permissible. The water trays are best when made of metal. These trays should be brought into metallic contact with the coils carrying the refrigerant so that the transfer of heat is carried on with little resistance.

Only small quantities of ice are made in this manner and the cost is somewhat higher but the convenience makes it desirable.

### Georgia Power Offers Employees Commissions On Liftop Rentals

ATLANTA—To rent General Electric Liftop refrigerators to minimum use customers, the Georgia Power Co. is offering its employees commissions of \$1 per month up to a maximum of eight months, on each box rented to a customer whose name is turned in by an employee.

This commission applies only on rentals to customers now using less than 35 kwh. per month; on rentals to customers using more than this, the employee receives a \$1 bonus (if the refrigerator is rented within 30 days) and no monthly commissions.

Monthly rental rates are: \$1 for January, February, March, October, November, and December, and \$2 a month for the remaining months.

In a similar employee rental campaign conducted by the power company last year, refrigerators were placed in the homes of 1,500 customers, and employees received commissions amounting to \$9,000.

Under this rental plan, if the customer rents the refrigerator continuously for a five-year period, it becomes his property. The company services the refrigerator during the five-year period.

### Five Square Water Heaters Added by Westinghouse

EAST PITTSBURGH — Westinghouse Electric & Mfg. Co. recently added five new square water heater models of 30, 52, 66, 80, and 120 gallon capacities to its line. The models, with the square-type 40-gallon heater previously introduced, have been designated the Empire line.

Styled with square type exterior casing, the models were designed to set flush with walls and cabinets of modern all-electric kitchens. Wiring and plumbing connections are placed at the cabinet base, and are concealed by a base panel.

The heaters are equipped with thermostats claimed to be positive acting. A temperature adjustment of 130° to 190° F. is permitted by the thermostatic controls.

### Smith Named Westinghouse Engineering Manager

EAST PITTSBURGH—Appointment of A. M. Smith as engineering manager of Westinghouse Electric & Mfg. Co. was announced recently by Dr. S. M. Kintner, vice president.

Mr. Smith has been associated with Westinghouse since 1915. A graduate of Texas A & M College, he entered the organization as student engineer. Since that time he has been identified with generator engineering operations, first as design engineer, later as a section engineer, and more recently, as design engineer in charge of the rotating alternating current machinery of the generator division.

He will maintain his office at the Westinghouse East Pittsburgh headquarters here.

### Billeter & White Added to Crosley Washer Division

CINCINNATI — Appointment of Peter F. Billeter and William T. White as special factory representatives of the washer and ironer sales divisions of the Crosley Radio Corp. was announced recently by company officials.

Prior to joining the Crosley organization, Mr. Billeter was district manager in the New England territory for Voss Brothers Manufacturing Co. of Davenport, Iowa.

Mr. White was with the Hurton Manufacturing Co. of Fort Wayne, Ind. for 12 years.

### Harris & Wallace Open Norge Shop in Topeka

TOPEKA, Kan.—Oran Harris and Henry Wallace, formerly with the electrical department of Harris Goar's Co., have opened an electrical shop at 103 West Eight St., as the newly organized Harris-Wallace Norge Co.

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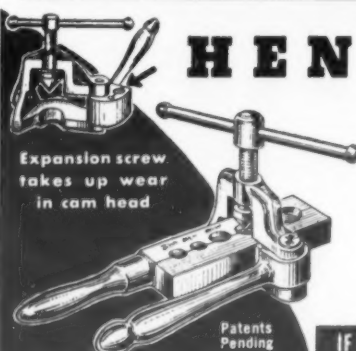
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